

## Summary of Changes

to

P 440.1-12

NETL Worker Protection Program Implementation

**Revised Version Issued as P 440.1-12A of 5/14/03**

NETL Procedure 440.1-12, NETL Worker Protection Program Implementation, of 6/19/01, has undergone revisions. These revisions include corrections (i.e., deleting forms, adding references, etc.) which were made after a review of the Procedure. Please replace NETL Procedure 440.1-12 with NETL Procedure 440.1-12A.

# U.S. Department of Energy

## National Energy Technology Laboratory

# PROCEDURE

P 440.1-12A

DATE: 5/14/03

**SUBJECT:** WORKER PROTECTION PROGRAM IMPLEMENTATION

1. PURPOSE. To establish the roles, responsibilities, and processes for implementing industrial hygiene and worker protection programs for NETL employees, including those related to blood-borne pathogens, respiratory protection, hearing conservation, and personal protective equipment (PPE).
2. CANCELLATION. This Procedure replaces NETL Procedure 440.1-12, NETL Worker Protection Program Implementation, of 6/19/01.
3. REFERENCES.
  - a. DOE Order 440.1, Worker Protection Management for DOE Federal and Contractor Employees.
  - b. NETL Order 440.1, NETL Safety and Health Program.
  - c. NETL Operating Plan 440.1-1, NETL Industrial Hygiene and Occupational Medicine Program.
  - d. NETL Procedure 440.1-13, NETL Hazard Communication Program.
  - e. NETL Procedure 440.1-14, NETL Workplace Monitoring.
  - f. NETL Procedure 440.1-31, NETL Occupational Medicine Program Implementation.
  - g. NETL Procedure 450.4-8, ES&H Training Process.
  - h. Form: NETL F 440.1-12/1, PPE Hazard Assessment.
  - i. Statutory ES&H Standards:
    - (1) 29 CFR, Part 1910, Occupational Safety and Health Standards.
    - (2) 29 CFR, Part 1926, Safety and Health Regulations for Construction.

**INITIATED BY:** Office of Business and Logistics

**NO. OF PAGES/ATTACHMENTS:** 9 pages, 5 attachments

## j. Reference ES&amp;H Standards:

- (1) ANSI Z 35.1-1972, Accident Prevention Signs.
- (2) ANSI Z 35.2-1968, Accident Prevention Tags and Specifications.
- (3) ANSI Z 53.1-1979, Marking Physical Hazards Safety Color Code.

## k. Other References:

- (1) Best's Safety Directory -- current edition.
- (2) CRC Handbook of Laboratory Safety, 3rd Ed., A. K. Furr (ed.), CRC Press, Boston, 1990.
- (3) L. Parmeggiani (ed.), Encyclopedia of Occupational Health and Safety, 3rd Ed., 1983.
- (4) National Research Council, Prudent Practices for Handling Hazardous Chemicals in Laboratories, National Academy Press, Wash., DC. 1981.

4. DEFINITIONS.

- a. Administrative Controls -- Methods of controlling employee exposures by job rotation, work assignment, or time periods away from the hazard.
- b. ANSI -- American National Standards Institute.
- c. CHO -- Chemical Hygiene Officer. An employee who is qualified by training and experience to provide technical guidance in developing and implementing NETL's Chemical Hygiene Plan. The CHO is appointed by the ES&HD Director.
- d. Engineering Controls -- Methods of controlling employee exposures by modifying the source or reducing the quantity of hazards (e.g., isolation or enclosure of hazards, guarding, ventilation, etc.).
- e. ES&HD -- NETL's Environment, Safety, and Health Division.
- f. Hazard Assessment -- A survey of work site hazards to determine necessary controls, including proper PPE selection.
- g. Line Manager -- One in charge of a department, division, group, or any functional work unit that directs, coordinates, or oversees the work and performance of others to varying degrees.

- h. OSHA -- Occupational Safety and Health Administration.
- i. PPE -- Personal Protective Equipment. Specialized clothing or equipment worn by employees to act as a barrier to environmental stressors in order to reduce the potential for exposure or injury (e.g., hard hats, safety shoes, safety glasses, hearing protection, respirators).
- j. RP -- Responsible Person. For the purposes of this Procedure, the person assigned to a project/laboratory who has the responsibility for generating project or laboratory test plans and operating procedures that include PPE requirements for that project/laboratory.
- k. SOP -- Standard Operating Procedure.
- l. SSC -- Site Support Contractor.

## 5. QUALITY CONTROL.

- a. NETL's ES&H assessors shall review SARS documentation annually to determine continued applicability of the authorization basis (e.g., permits).
- b. NETL's Safety and Health Officer shall compile and review illness and injury data and conduct trend analysis to determine the need for system improvements.
- c. This NETL Directive will be reviewed (and revised as needed) by the Worker Protection Program Managers each year for the first 3 years after initial implementation and once every 3 years thereafter to ensure that it is kept up-to-date with current requirements. More frequent reviews and revisions could occur due to significant regulatory and site condition changes.

## 6. RESPONSIBILITIES.

- a. Associate Directors shall:
  - (1) Be responsible for implementing PPE requirements in their organizations and hazard communication program requirements for their employees regarding workplace hazards and their control through use of PPE.
  - (2) Assure that adequate financial and personnel resources are available to implement the requirements of this Procedure in their areas.
- b. Safety and Health Officer shall act as a QA Manager for NETL's Safety and Health Program and shall ensure continuous improvement of the safety and health posture of NETL.

- c. ES&H Program Managers (e.g., NETL's Industrial Hygiene, Occupational Medicine, and Worker Protection Program Managers) shall ensure that regulatory requirements are being met within their programs, including OSHA and DOE requirements.
- d. Line Managers shall:
- (1) Have overall responsibility for safety performance in the laboratories, facilities, and work areas under their control, including posting and adherence to hazard warnings, safety placards, and PPE signs.
  - (2) Ensure that workers know and follow worker protection requirements and procedures, including the use of PPE.
  - (3) Through the NETL SARS processes and other assessment/evaluation processes, determine, in consultation with the ES&H Division, PPE requirements for their work areas.
  - (4) Submit PPE requests to the ES&HD for approval and purchase.
  - (5) Provide for appropriate PPE for employees, research associates, and visitors in their work areas.
  - (6) Conduct workplace assessments, including periodic inspections of PPE and emergency equipment (e.g., PPE and emergency equipment are available and in working order) and determining if PPE is being properly used by employees, research associates, and visitors.
  - (7) Document significant findings identified during these assessments and any corrective actions taken using NETL's Corrective Action Tracking System.
  - (8) Determine, in consultation with the ES&HD staff, which areas shall be posted as requiring PPE and ensure that hazard warnings, safety placards, and PPE signs are posted in these required areas.
  - (9) Ensure employees are trained in the proper use of PPE items.
  - (10) Prescribe required PPE necessary to reduce risks to an acceptable level. This shall be included in SARS documentation and operating procedures (e.g., SOPs).
  - (11) Request the ES&H Division to analyze and evaluate the working environment in areas that have a reasonable, but unverified, potential for the presence of hazardous conditions requiring the use of PPE.
  - (12) Maintain any necessary stock of general PPE necessary for their work area, such as gloves or extra hard hats, etc.

e. Responsible Persons shall:

- (1) Include PPE requirements in the SARS documentation and SOPs for their project(s).
- (2) Review SOPs with employees, familiarizing them with the required PPE.
- (3) Ensure that appropriate signs regarding PPE are posted in the project area(s).

f. Designated ES&HD Representatives shall:

- (1) Analyze and evaluate potential hazards and/or hazardous areas and provide consultation and recommendations as to the PPE required.
- (2) Assist in identifying the types of activities requiring PPE.
- (3) Store and dispense non-prescription safety glasses.
- (4) Assist workers with obtaining prescription safety glasses, as necessary.
- (5) Approve purchase orders for prescription safety glasses and safety shoes.
- (6) Ensure the PPE inventory is rotated, and that any issued PPE is in good repair and not damaged.
- (7) As part of regularly scheduled audits and inspections, ensure that all areas of the NETL site have adequate and appropriate PPE-related signs and that PPE is being properly used.

g. Employees shall:

- (1) Use the required PPE in designated hazardous areas when specified by a SARS document, SOP, hazard warnings, safety placards, PPE signs, or as dictated by common sense.
- (2) Inspect PPE prior to use to ensure it is in good condition and appropriate for the intended operation.
- (3) Properly maintain all issued PPE.
- (4) Turn in any damaged or non-functioning equipment to the Line Manager or ES&HD and obtain a replacement.
- (5) Report to their Line Manager or ES&HD any equipment or procedure deficiency which does or could result in an unsafe situation.

- (6) Accompany DOE worker protection personnel during inspections.
- (7) Decline to perform an assigned task because of a reasonable belief that the task poses a significant threat of injury or illness under the current circumstances.
- h. NETL Site Support Contractors shall implement, within their own workforce and workplace, the requirements set forth in this Procedure.
- i. Contracting Officers shall ensure that documents containing contractor requirements include worker protection requirements that shall be applied to contracts and subcontracts for performing work for DOE/NETL at DOE/NETL-owned or DOE/NETL-leased facilities.

7. TRAINING REQUIREMENTS. All training shall be in accordance with the NETL ES&H Training Procedure.

8. DOCUMENT CONTROL.

- a. Hazard assessments, including OSHA-required PPE assessments, shall be maintained by SSC ES&H staff for a period of no less than 3 years.
- b. The most recent and official controlled hard copy version of this Procedure shall reside with NETL's Directives Coordinator. An electronic version of this controlled Procedure shall be placed on the NETL Intranet for employee use. Printed hard copies of this Procedure (e.g., those printed from the Intranet) shall be considered non-controlled documents.
- c. Relevant OSHA logs shall be maintained and posted as required, by each functional element. Completed logs shall be archived in the ES&H Records Center.

9. PROCEDURE.

- a. Function -- The NETL Worker Protection Program shall be designed to preserve employee health and well-being through identifying, evaluating, and controlling hazardous exposures and stresses found in the workplace. These exposures and stresses include, but are not limited to, the following:
  - (1) Chemical hazards.
  - (2) Physical hazards, including electromagnetic radiation, noise, vibration, magnetic fields, ionizing radiation, and extremes of temperature and pressure.
  - (3) Biological hazards, such as infectious diseases.

- (4) Ergonomic hazards associated with repetitive motion, mental and physical fatigue, or nature of task.
  - (5) Environmental hazards, such as heat and cold.
- b. Identifying Health Hazards -- Personnel involved in the Worker Protection Program shall identify potential health hazards by:
  - (1) Reviewing R&D projects, support operations, and facilities through SARS processes.
  - (2) Reviewing hazardous material inventories.
  - (3) Conducting personnel dosimetry and workplace monitoring and surveillance activities.
  - (4) Performing inspections.
  - (5) Reviewing new material purchases.
  - (6) Reviewing injury and illness information.
- c. Conducting Hazard Assessments for PPE Determination -- Hazard assessments shall be conducted to ensure that adequate PPE requirements are included in the SOPs and SARS documentation (reference NETL F 440.1-12/1, PPE Hazard Assessment).
  - (1) A Hazard Assessment shall be performed by ES&H staff or RPs on each project to determine if hazards are present, or are likely to be present, which necessitate the use of PPE.
  - (2) The Hazard Assessment shall be sent to the CHO, OHU, the project RP, and the SARS documentation file.
  - (3) The CHO may choose to “reject” the annual Chemical Hygiene Inspection report, if the SOPs do not contain the adequate PPE necessary to mitigate the hazards listed in the Hazard Assessment.
- d. Hazard Controls -- Controls to prevent and mitigate hazards shall be developed and tailored to the work being performed and to the associated hazards.
  - (1) These controls may include engineering controls, administrative controls, and PPE as necessary and appropriate. Engineering controls are required if feasible, followed by administrative controls and PPE, respectively.
  - (2) The use of PPE for hazard controls shall be adopted only when engineering and administrative controls are not feasible or effective.



- e. Recordkeeping Requirements -- The Worker Protection Program Manager shall maintain records on surveys, inspections, and environmental monitoring results. These records shall be maintained and made accessible in accordance with applicable DOE and OSHA Standards.
- f. PPE Notice Signs for Buildings and Areas
  - (1) Exterior and interior mandoor doors that open into a project area shall have a Notice sign posted with the PPE requirements for that project area.
  - (2) An exterior mandoor that opens into a general area having general area PPE requirements shall have a Notice sign posted with the PPE requirements for that general area.
  - (3) An exterior mandoor that opens into a general area not having general area PPE requirements could choose to post a Notice sign with the possible PPE requirements for entering the specific project areas within the building (e.g., “Hard Hats, Safety Glasses, and Steel Toes, As Needed” or “Hard Hats, Safety Glasses, and Steel Toes May Be Required”).
  - (4) An interior mandoor that does not lead into a project area having PPE requirements is not required to have a Notice sign.
  - (5) Individual project areas within a building not enclosed by interior walls or having interior door access shall post individual project area PPE requirements by using Notice stands or other prominent signage mechanisms.
- g. Additional Program Requirements -- Additional program requirements for implementing the Worker Protection Program are included in the attachments.

## 10. ATTACHMENTS.

- a. Attachment A -- NETL Bloodborne Pathogens Protection.
- b. Attachment B -- NETL Respiratory Protection.
- c. Attachment C -- NETL Hearing Protection.
- d. Attachment D -- NETL Personal Protective Equipment -- Eye, Face, Hand, Head, and Foot Protection.

- e. Attachment E -- NETL Emergency Eyewashes and Emergency Showers.

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Associate Director, OBL

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Associate Director, OST

## ATTACHMENT 1

## NETL BLOODBORNE PATHOGENS PROTECTION

1. PURPOSE. To outline the NETL process for minimizing or eliminating employee, research associate, and visitor exposure to bloodborne pathogens (BBP) and for achieving regulatory compliance with OSHA bloodborne pathogen requirements.
2. CANCELLATION. This Attachment replaces all documents pertaining to NETL bloodborne pathogens protection created prior to the NETL formation.
3. REFERENCES.
  - a. NETL Procedure 435.1-1, Waste Handling, Storage, and Disposal.
  - b. 29 CFR 1910, Occupational Exposure to Bloodborne Pathogens; Needlesticks and Other Sharps Injuries; Final Rule.
  - c. 29 CFR 1910.1030, "Bloodborne Pathogens."
  - d. U.S. Department of Health and Human Services Public Health Services, Center for Disease Control, "Universal Precautions."
  - e. Forms:
    - (1) NETL F 440.1-12/2, Hepatitis B Vaccination Declination.
    - (2) NETL F 440.1-12/3, Hepatitis B Vaccination Informed Consent.
    - (3) NETL F 440.1-12/4, NETL Post-Exposure Laboratory Test Consent.
    - (4) NETL F 440.1-12/5, NETL Sharps Injury Log.
    - (5) NETL F 442.1-1, Physician's Written Opinion.
4. DEFINITIONS.
  - a. BBP -- Bloodborne pathogens. Pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV).
  - b. Exposure Control Plan -- A plan outlining the process for prevention, intervention, and follow-up care of exposures to BBPs.

- c. Line Manager -- One in charge of a department, division, group, or any functional work unit that directs, coordinates, or oversees the work and performance of others to varying degrees.
- d. OHU -- Occupational Health Unit. Consists of a facility and qualified staff that conduct health evaluations, examinations, treatment, information dissemination, and other health-related activities, which contribute to the health and well-being of NETL personnel.
- e. Sterilize -- The use of a physical or chemical procedure to destroy all microbial life including highly resistant bacterial endospore.
- f. Universal Precautions -- An approach to infection control. According to the concept of universal precautions, all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other BBPs.
- g. Work Practice Control -- Controls that reduce the likelihood of exposure by altering the manner in which a task is performed (e.g., prohibiting recapping of needles by a two-handed technique).

## 5. QUALITY CONTROL.

- a. NETL's Occupational Medicine Program Manager shall provide oversight and guidance to ensure that implementation of NETL's Bloodborne Pathogen Program is in compliance with applicable OSHA, DOE, and NETL regulations and/or requirements.
- b. ES&H SSC Management shall implement quality control aspects of NETL's OHUs in accordance with applicable OSHA, DOE, NETL, and contract requirements.
- c. OHU medical staff shall practice in accordance with current accepted medical practices.

## 6. RESPONSIBILITIES.

- a. Line Managers shall:
  - (1) Ensure that all employees under their supervision who have occupational exposure to BBPs follow engineering, administrative, and work practice controls; use universal precautions; and don appropriate PPE when performing work.
  - (2) Ensure that employees under their supervision who have occupational exposure to BBPs receive annual training on how to minimize or avoid exposure to BBPs.
  - (3) Ensure that employees under their supervision who have occupational exposure to BBPs have been offered the hepatitis B vaccination by interfacing with the OHU to verify that their employees have been contacted and offered the vaccination.

b. NETL's Occupational Health Physicians shall:

- (1) Manage the Hepatitis Program.
- (2) Ensure that the hepatitis B vaccinations and post-exposure follow-up is provided according to recommendations of the U.S. Public Health Service current at the time the evaluations and procedures take place.

c. OHU Medical Staff shall:

- (1) Administer the hepatitis B vaccinations and provide post-exposure evaluations and follow up. In the case of after-hours exposure, the local emergency room shall be utilized for employee exposure evaluation.
- (2) Provide BBP training.
- (3) Review and update the Exposure Control Plan (see Attachment A1) at least annually and whenever necessary to reflect new or modified tasks and procedures that affect occupational exposures.
- (4) Ensure that all required containers within their facility are properly labeled.
- (5) Maintain occupational exposure records as part of employees' medical records.
- (6) Ensure that specimens sent off-site are transported by a courier in accordance with this Attachment.
- (7) Maintain medical records.

d. ES&H Training Team shall:

- (1) Schedule BBPs training.
- (2) Maintain records of employee attendance at the annual training.
- (3) Maintain all training records for a period of 3 years from the date the training is held.
- (4) Ensure that the person conducting the training is knowledgeable in the subject matter covered by the training program as it relates to the workplace.

e. Employees shall:

- (1) Follow all engineering, administrative, and work practice controls, use universal precautions, and wear PPE when performing work.

- (2) Attend/complete all applicable training.
- (3) Report for all vaccinations and post-exposure follow-up examinations when scheduled.

7. TRAINING REQUIREMENTS.

- a. The NETL ES&H Training Team shall institute a training program for all employees who have the potential for occupational BBP exposures and shall require employee participation in the program.
- b. The training program shall be repeated annually for each employee. Additional training shall be provided when changes such as new or modified tasks or procedures affect the employee's potential for an occupational exposure.
- c. The person conducting the training shall be knowledgeable in the subject matter covered by the training program as it relates to the workplace.

8. DOCUMENT CONTROL.

- a. Copies of all medical records shall be maintained by the OHU as part of the employee's medical record as long as the employee is employed at NETL. Once the employee leaves NETL, the medical record shall be handled as follows:
  - (1) DOE Employees -- 90 days after leaving NETL, the medical record shall be sent to DOE's Records Retention Center.
  - (2) SSC Employees -- The medical record shall be maintained by the OHU in an inactive status for at least 30 years after the employee's termination date.
  - (3) All Other Employees -- The medical record shall be maintained by the OHU in an inactive status for at least 30 years after the employee's termination date.
- b. Copies of all training records shall be maintained by the NETL ES&H Training Team for a period of 3 years after the date of the training.
- c. The Occupational Medicine Program Manager shall review and update this Attachment as necessary to accommodate changing conditions at NETL and to ensure compliance with applicable regulatory requirements.
- d. The most recent and official controlled hard copy version of this Attachment shall reside with NETL's Directives Coordinator. An electronic version of this controlled Attachment shall be placed on the NETL Intranet for employee use. Printed hard copies of this Attachment (e.g., those printed from the Intranet) shall be considered non-controlled documents.

9. PROCEDURE. Reference Exposure Control Plan (Attachment A1).
10. ATTACHMENTS.
  - a. Attachment A1 -- Bloodborne Pathogen Exposure Control Plan.

## ATTACHMENT A1

## BLOODBORNE PATHOGEN EXPOSURE CONTROL PLAN

1. INTRODUCTION.

The National Energy Technology Center (NETL) recognizes the potential danger to its health care and support staff which results from occupational exposure to bloodborne pathogens (BBPs) as addressed by the Occupational Safety and Health Administration's (OSHA) Bloodborne Pathogens Standard in 29 CFR 1910.1030 and Occupational Exposure to Bloodborne Pathogens: Needlestick and Other Sharps Injuries; Final Rule (effective April 18, 2001). Recognizing the need to protect employees, and in full support of these rules, the following Bloodborne Pathogens Exposure Control Plan has been developed and shall be available in the NETL Occupational Health Units and in electronic format. The Plan shall be reviewed and updated at least annually and whenever necessary to reflect new or modified tasks and procedures which affect occupational exposure and to reflect new or revised employee positions with occupational exposure. The review shall reflect changes in technology that eliminate or reduce exposure to BBPs and shall document consideration and implementation of such devices. In addition, input from employees providing direct patient care shall be solicited and documented in the BBP Exposure Control Plan as required under the rule.

2. DEFINITIONS.

- a. BBP -- Bloodborne pathogens. Pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV).
- b. Blood -- Human blood, human blood components, and products made from human blood.
- c. Contaminated -- The presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface.
- d. Contaminated Laundry -- Laundry that has been soiled with blood or other potentially infectious materials or may contain sharps.
- e. Contaminated Sharps -- Any contaminated object that can penetrate the skin including, but not limited to, needles, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wires.
- f. Decontamination -- The use of physical or chemical means to remove, inactivate, or destroy BBPs on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal.



- g. Engineering Controls -- For the purposes of this Plan, controls (e.g., sharps disposal containers, self-sheathing needles) that isolate or remove the BBPs hazard from the workplace.
- h. Exposure Determination -- An assessment conducted for employees with potential occupational exposure to BBPs.
- i. Exposure Incident -- A specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious materials that results from the performance of an employee's duties.
- j. Handwashing Facilities -- A facility providing an adequate supply of running potable water, soap, and single-use towels or hot air-drying machines.
- k. HBV -- Hepatitis B virus.
- l. HCV -- Hepatitis C virus.
- m. HIV -- Human immunodeficiency virus.
- n. Licensed Health Care Professional (HCP) -- For the purposes of this Plan, a person whose legally permitted scope of practice allows him or her to independently perform the activities as required under hepatitis B vaccination and post-exposure evaluation and follow-up.
- o. Occupational Exposure -- Reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee's duties.
- p. OHU -- Occupational Health Unit. Consists of a facility and qualified staff that conduct health evaluations, examinations, treatment, information dissemination, and other health-related activities, which contribute to the health and well-being of NETL personnel.
- q. Other Potentially Infectious Materials
  - (1) The following body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate among body fluids.
  - (2) Any unfixed tissue or organ (other than intact skin) from a human (living or dead).

- (3) HIV-containing cell or tissue cultures; organ cultures; and HIV-, HBV-, or HCV-containing culture medium or other solutions and blood, organs, or other tissues from experimental animals infected with HIV, HBV, or HCV.
  - r. Parenteral -- Piercing mucous membranes or the skin barrier through such events as needle sticks, human bites, cuts, or abrasions.
  - s. PPE -- Personal Protective Equipment. Specialized clothing or equipment worn by employees to act as a barrier to environmental stressors in order to reduce the potential for exposure or injury (e.g., hard hats, safety shoes, safety glasses, hearing protection, respirators).
  - t. Regulated Waste -- For the purposes of this Plan, liquid or semi-liquid blood or other potentially infectious materials, contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed, items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling, contaminated sharps, and pathological and microbiological wastes containing blood or other potentially infectious materials.
  - u. Sharps With Engineered Sharps Injury Protections -- A non-needle sharp or a needle device used for withdrawing body fluids, accessing a vein or artery, or administering medications or other fluids, with a built-in safety feature or mechanism that effectively reduces the risk of an exposure incident.
  - v. Source Individual -- Any individual, living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure to the employee.
  - w. Sterilize -- The use of a physical or chemical procedure to destroy all microbial life including highly resistant bacterial endospore.
  - x. Universal Precautions -- An approach to infection control. According to the concept of universal precautions, all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, HCV, and other BBPs.
  - y. Work Practice Control -- Controls that reduce the likelihood of exposure by altering the manner in which a task is performed (e.g., prohibiting recapping of needles by a two-handed technique).
3. EXPOSURE DETERMINATION. An exposure determination shall be made for all employees with potential occupational exposure to BBPs.
    - a. The following job classifications have the potential for occupational BBP exposures:
      - (1) OHU medical staff.

- (2) Emergency Response Organization first responders.
  - (3) Security.
  - (4) Hazardous waste handlers.
  - (5) Janitorial staff.
  - (6) Plumbers.
- b. The following job classifications may have the potential for occupational exposures: all other employees who are required to receive first aid training. These positions normally do not involve exposure to BBPs but may require performing unplanned tasks that present the potential for BBP exposure.
- c. Tasks and procedures with the potential for occupational exposures:
  - (1) Medical procedures including, but not limited to, administering medical treatment, emergency medical aid, injections, phlebotomy, specimen collection, and physical examination.
  - (2) Disposal of medical waste.
  - (3) Clean up and decontamination of medical waste spills and medical equipment.
  - (4) Cleaning of restrooms, OHU, and disposal of restroom wastes.
  - (5) Unclogging of toilets, sinks, and sewer mains.

#### 4. METHODS OF COMPLIANCE.

- a. Universal precautions shall be observed at NETL to prevent contact with blood or other potentially infectious materials when the potential for such contact exists. Under circumstances in which differentiation between body fluid types is difficult or impossible, all body fluids shall be considered as potentially infectious materials.
- b. Engineering and work practice controls shall be utilized to eliminate or minimize NETL employee's potential for exposure. New health safety devices shall be evaluated as they become available. These devices shall be adopted if found to further reduce the risk of an exposure incident. NETL employees have the responsibility for proper use and routine care of health safety devices and PPE and shall report any observed deficiencies to supervisors. Each employee shall recognize the possibility of failure of a safety device, and therefore, shall adhere to the tenants of universal precaution to avoid relying solely on a mechanical device to avoid the risk of personal contamination. Where occupational exposure remains after institution of these controls, PPE shall also be utilized.

- (1) Handwashing facilities shall be provided that are readily accessible to the employee. At NETL, such facilities shall be available in the OHU, restrooms, and throughout the site.
- (2) Employees shall wash their hands and other contaminated areas of the skin and flush mucous membranes if potential contamination has occurred:
  - (a) Immediately after exposure to potentially infectious materials, and
  - (b) Immediately (or as soon as feasible) after removal of gloves or other PPE.
- (3) Handwashing shall be performed as follows:
  - (a) Wash hands with soap and running water.
  - (b) Rinse hands under running water.
  - (c) Dry hands well with paper towel.
  - (d) Use paper towel to turn off faucet. All manually controlled faucets are considered contaminated.
  - (e) Dispose of single use or linen towels in appropriate containers.
  - (f) Apply hand cream after frequent handwashing to prevent skin irritation, breakdown, and subsequent infection.
- (4) If handwashing facilities are not feasible, an antiseptic hand cleanser in conjunction with clean cloth/paper towels or antiseptic toileses shall be provided, and the hands shall be washed with soap and running water as soon as possible.
- (5) Needles and Sharps: Universal precautions apply to any used needle and/or sharps. No reusable sharps shall be used in the NETL OHUs.
  - (a) Contaminated needles and other contaminated sharps shall not be bent, recapped, removed, sheared, or purposely broken. Exception: recapping and removal may be made if no other alternative is feasible or such action is required by medical procedure. When such action is required, then the recapping or removal of the needle must be accomplished by the use of a mechanical device or a one-handed technique. At NETL, recapping is only permitted during and after venipuncture for the collection of blood using a needle holder and one-handed technique.
  - (b) Sharps with engineered sharps injury protection shall be used whenever possible.

- (6) Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are prohibited in work areas where there is a reasonable likelihood of occupational BBP exposure (e.g., OHU treatment and examination rooms).
- (7) Food and drink shall not be kept in refrigerators, freezers, shelves, cabinets, or on counter or bench tops where blood or other potentially infectious materials are present (e.g., OHU treatment and examination rooms).
- (8) All procedures involving blood or other potentially infectious materials shall be performed in such a manner as to minimize splashing, spraying, spattering, and generation of droplets of blood or other potentially infectious substances.
- (9) Mouth pipetting/suctioning of blood or other potentially infectious materials is PROHIBITED.
- (10) Specimens of blood or other potentially infectious materials shall be placed in a puncture-resistant container which prevents leakage during collection, handling, processing, storage, transport, or shipping. The container for storage, transport, or shipping shall be labeled with a "BIOHAZARD" label.
- (11) If outside contamination of any primary or secondary container occurs, if feasible, OHU staff shall clean any evidence of the contaminant before placing the contaminated container into an additional container which prevents leakage during handling, processing, storage, transport, or shipping. The additional container will also be labeled with a "BIOHAZARD" label.

c. Personal Protective Equipment (PPE)

- (1) To provide easy and immediate access, appropriate PPE, including but not limited to the list below, shall be provided by NETL at no cost for all potentially affected NETL employees.
  - (a) Protective gloves.
    - Any NETL employee determined to be at risk for occupational exposure(s) shall wear gloves when it can be reasonably anticipated that they may come in contact with blood, other potential infectious materials, or contaminated surfaces or items.
    - Single-use gloves shall not be reused and shall be replaced as soon as feasible if they become torn or punctured. Utility gloves may be reused following decontamination if they are not torn or punctured.
  - (b) Disposable gowns.

- (c) Laboratory coats.
  - (d) Face shields or masks.
  - (e) Eye protection.
  - (f) Disposable resuscitation bags.
  - (g) Pocket masks.
- (2) Appropriate PPE is that which does not permit blood or other potentially infectious materials to pass through or reach the employee's work clothes, street clothes, undergarments, skin, eyes, mouth, or other mucous membranes under normal conditions and for the duration of use.
  - (3) At NETL, appropriate PPE shall be available in OHU treatment areas, first-aid/emergency response kits, and janitorial and plumbers supply areas.
  - (4) Appropriate protective clothing shall be worn in occupational exposure situations. The type and characteristics will depend upon the task and degree of exposure anticipated (e.g., masks and/or full face shields in combination with eye protection when exposure to splashes, spray, or droplets of infectious material is anticipated).
  - (5) Replacement of PPE due to contamination or normal wear will be the responsibility of ES&H Division. Contaminated PPE will be disposed of per this Plan's requirements for biohazardous waste disposal. Specialized needs for PPE will be considered on an individual basis (e.g., hypoallergenic gloves).
  - (6) All personnel shall be trained in the proper use of such equipment. This training is included in annual BBP training.
  - (7) When contaminated PPE is removed, it shall be immediately placed in the appropriate container for decontamination or disposal.
  - (8) All PPE shall be removed prior to leaving the workplace.
- d. Housekeeping. The work site shall be maintained in a clean and sanitary condition.
- (1) General housekeeping shall be accomplished in accordance with the cleaning subcontractor contract requirements.
  - (2) Decontamination shall be accomplished in accordance with NETL's environmental/waste management directives.
  - (3) BBP cleanup.

- (a) If there has been potential BBP contamination at the NETL site (e.g., accident, spill) or potentially contaminated clothing/materials present, employees shall call Security (x11) or the OHU for guidance or further instructions. The OHU has the option of cleaning up the BBP spills themselves or contacting appropriately trained and vaccinated staff (e.g., certain Hazmat trained personnel or janitorial workers) for cleanup.
- (b) All equipment, environmental, and working surfaces shall be cleaned and decontaminated with a disinfectant solution of bleach and water (1:100) or its equivalent, unless contraindicated by the manufacturer, after contact with blood or other potentially infectious materials. OHU medical staff or trained emergency responders shall be responsible for preliminary cleaning if necessary.
- (c) All potentially contaminated equipment to be sent for repair shall be decontaminated prior to shipment. The vendor shall be contacted for instruction on the packaging and shipping of contaminated equipment.
- (d) Blood spills which result in a large volume will be remedied with an application of an approved absorbent powder. Once applied to the blood spill, this absorbent powder will be removed by mechanical means (i.e., scoop and spatula).
- (4) All bins, pails, cans, and similar receptacles intended for reuse that have a reasonable likelihood for becoming contaminated with blood or other potentially infectious materials shall be inspected and decontaminated on a daily basis and shall be decontaminated immediately or as soon as feasible upon visible contamination.
- (5) Broken glassware which may be contaminated shall not be picked up directly with the hands but shall be cleaned up using mechanical means such as a brush and dust pan, tongs, or forceps.

e. Regulated Waste

- (1) All regulated wastes, other than needles and sharps, shall be disposed of in red BIOHAZARD bags contained in an appropriate trash can labeled "BIOHAZARD" in accordance with Federal, state, and local regulations.
- (2) Used needles and sharps shall be disposed of immediately in designated disposal containers available in all OHU treatment areas and in first aid kits. These disposal containers shall be:
  - (a) Puncture resistant.
  - (b) Labeled as a "BIOHAZARD" container.



- (c) Leakproof on the sides and bottom.
  - (d) Replaced prior to becoming overfilled (as indicated on container) or sooner as required by Biohazard Waste Disposal regulations.
- (3) Biohazardous waste containers identified for disposal of regulated waste shall:
- (a) Be easily accessible to personnel and located as close as feasible to the immediate work area.
  - (b) Be maintained upright throughout use.
  - (c) Be replaced routinely as mandated by state or local regulations.
  - (d) Not be allowed to become overfilled.
  - (e) Not have contents manipulated (shaken or otherwise decompressed).
- (4) All primary biohazardous waste containers such as sharps containers and “red biohazard trash bags” shall be closed prior to removing to prevent spillage or protrusion of contents. The primary containers shall be placed in a secondary shipping container supplied by the OHU’s medical waste removal vendor and marked according to Federal, state, and local regulations.
- (5) Reusable containers shall not be opened, emptied, or cleaned manually or in any other manner which would expose employees to the risk of percutaneous injury.

f. Laundry

- (1) Contaminated laundry shall be handled as little as possible with a minimum of agitation.
- (2) Contaminated laundry must be bagged or contained at the location where it was used and shall not be sorted or rinsed in the location of use.
- (3) Contaminated laundry shall be placed and transported in properly labeled or containers.
- (4) If personal clothing becomes contaminated, NETL shall be responsible for the cleaning of the clothing. Grossly contaminated articles of clothing will be replaced. A local laundry capable of performing biohazardous laundry service shall be selected by the OHU staff. If there is no local laundry capable of performing this service, NETL will provide new clothing. Contaminated clothing will be disposed of per the requirements of this Plan.



- (5) Wet laundry shall be placed and transported in bags or containers that prevent soak-through and/or leakage of fluids to the exterior.
- (6) Employees that have contact with contaminated laundry shall wear protective gloves and other appropriate PPE.

*Note:* See the NETL Procedure 435.1-1, Waste Handling, Storage, and Disposal for more information regarding handling, storage, and disposal of medical waste.

## 5. HEPATITIS B VACCINE AND POST-EXPOSURE EVALUATION AND FOLLOW-UP.

### a. Hepatitis B Vaccine

- (1) All employees who are considered “at-risk” for occupational BBP exposure shall be offered the hepatitis B vaccination at the time of initial employment orientation.
- (2) The vaccination shall be made available from the OHU at no cost to the employee in compliance with the current U.S. Public Health Service procedures.
- (3) Reasons for not offering the vaccine include:
  - (a) The employee has previously received the complete hepatitis B vaccination series.
  - (b) Antibody testing has revealed the employee is immune.
  - (c) The vaccine is contraindicated for medical reasons.
- (4) Employees who accept the offer for the hepatitis B vaccine shall complete the Hepatitis B Vaccine Consent form (reference NETL F 440.1-12/3, Hepatitis B Vaccination Informed Consent).
- (5) Employees who decline the offer for the hepatitis B vaccine shall complete the Hepatitis B Vaccine Declination form (reference NETL F 440.1-12/2, Hepatitis B Vaccination Declination).
- (6) Employees who initially decline the hepatitis B vaccination series but wish to be vaccinated at a later date, while still covered under the standard, shall be offered the vaccination at no cost.
- (7) If the U.S. Public Health Service indicates that, at some future date, a booster is recommended, the immunization shall be offered to affected NETL employees at no cost.

b. Post-Exposure Evaluation and Follow-Up

- (1) Any NETL employee involved in an exposure incident shall be offered a confidential medical evaluation and follow-up. The evaluation and follow-up shall include the following:
  - (a) Written documentation of the circumstances surrounding the exposure incident provided in accordance with the NETL Incident Reporting Procedure, NETL F 442.1-1, Physician's Written Opinion, and medical documentation.
  - (b) Exposed individual.
    - The exposed employee's blood shall be collected as soon as feasible and tested by a certified laboratory after consent is obtained (reference NETL F 440.1-12/4, NETL Post-Exposure Laboratory Test Consent).
    - Referral of the exposed employee to the appropriate health care facility for HIV/HBV/HCV testing shall be provided by the OHU medical staff.
    - The testing schedule for post-exposure HIV, HBV, and HCV is as follows:
      - 6 weeks post-exposure.
      - 3 months post-exposure.
      - 6 months post-exposure.
      - 12 months post-exposure (optional).
    - The exposed employee shall have access to the results of the source individual's testing in accordance with state and/or local regulations concerning disclosure of the identity and infectious status of the source individual.
    - Pre- and post-test counseling shall be carried out by an appropriate health care facility determined by the OHU medical staff.

- Any medical records that the employee feels may be relevant to appropriate treatment can be provided to the appropriate health care facility at the discretion of the exposed employee.
  - The exposed employee shall be provided with a copy of the Physician's Written Opinion within **15 calendar days** of the completion of the evaluation. The Physician's Written Opinion shall include (1) whether the hepatitis B vaccine is indicated, (2) if the employee has already received or previously refused such vaccination, and (3) the results of the post-exposure evaluation including discussion of any medical conditions which may develop as a result of the exposure incident and which may require further evaluations or treatment.
- (c) Source individual.
- Identification of the source individual (unless prohibited by law) and referral of that individual to the appropriate health care facility for HIV/HBV/HCV testing shall be accomplished. Testing for HIV/HBV/HCV and pre- and post-test counseling shall be carried out by a predetermined local health care facility. The appropriate health care facility shall be determined by the OHU medical staff.
  - Testing of the source individual's blood shall be completed as soon as feasible, after consent is obtained (reference NETL F 440.1-12/4, **NETL Post-Exposure Laboratory Test Consent**), in order to determine HIV, HBV, and HCV infectivity. If consent cannot be obtained, NETL shall document that consent cannot be obtained.
  - When the source individual has medical documentation of HIV/HBV/HCV infection, testing of the source individual's blood is not necessary.
- (d) If a post-exposure prophylaxis is recommended, it will be offered to NETL employees at no cost and shall include:
- Free medical counseling which shall be offered to any employee who has had an exposure incident while performing NETL job functions and other activities related to employment. This counseling shall be provided by the appropriate health care facility designated to provide post-exposure evaluation.
  - Evaluation of reported illnesses.
- (e) An individual employee can decline to have a baseline analysis performed. However, the employee may choose to have a blood sample drawn and

retained by the laboratory for 90 days if there is a likelihood that the employee may wish to reverse his/her original decision not to be tested. The laboratory would then be instructed to perform the baseline analysis.

- (f) All information needed for post-exposure evaluation and follow-up (e.g., written documentation of exposure incident, laboratory results, etc.) shall be provided to the appropriate health care facility.
- (g) Reference Attachment A1-A for a summary flow chart of the post-exposure evaluation and follow-up process.

6. COMMUNICATION OF HAZARDS TO EMPLOYEES.

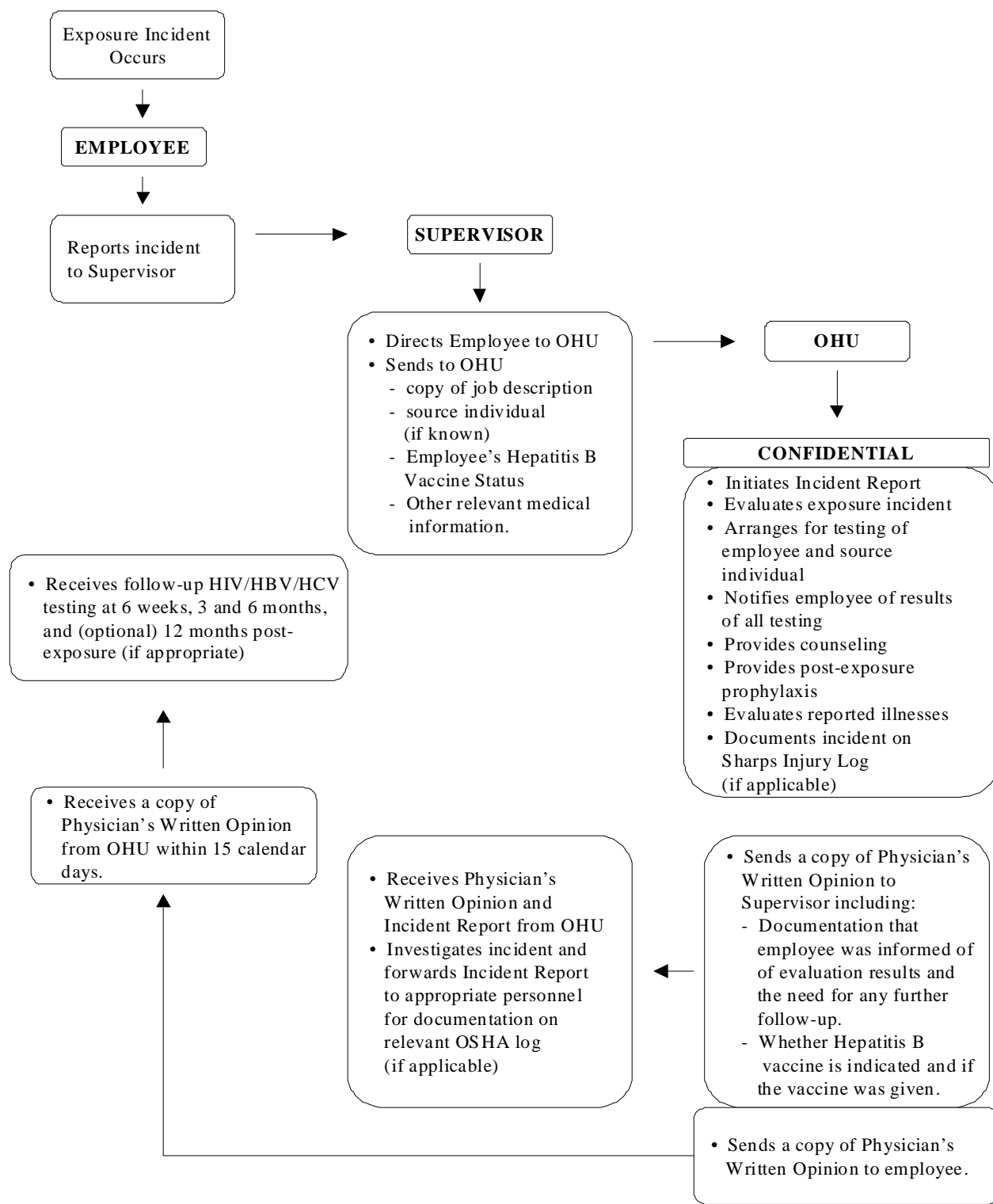
- a. All biohazardous materials and/or containers shall be labeled with the standard “BIOHAZARD” label.
- b. All NETL employees having the potential for occupational exposures shall receive annual BBP training which shall include the following:
  - (1) A copy of 29 CFR 1910.1030.
  - (2) Epidemiology and symptoms of bloodborne diseases.
  - (3) Modes of transmission of BBP.
  - (4) Explanation of the site-specific BBP Exposure Control Plan.
  - (5) Methods for recognizing the potential for BBP exposure.
  - (6) Methods for prevention of BBP exposure through engineering controls, work practice controls, and PPE.
  - (7) Appropriate selection, use, handling, and disposal of PPE.
  - (8) Hepatitis B vaccine information.
  - (9) Information on emergency procedures to be followed in the event of an occupational exposure.
  - (10) Post-exposure evaluation and follow-up information.
  - (11) Explanation of signs and labels required by 29 CFR 1910.1030 (g)(1).
  - (12) Question and answer session.

## 7. RECORDKEEPING.

- a. A record shall be established for each employee that has an occupational BBP exposure. These records shall be maintained as part of the employee's medical record and shall include the following:
  - (1) The name and social security number of the employee.
  - (2) A copy of the employee's hepatitis B vaccination status including the dates of all hepatitis B vaccinations and any medical records relative to the employee's ability to receive the vaccination.
  - (3) A copy of all results of examinations, medical testing, and follow-up procedures.
  - (4) A copy of the Physician's Written Opinion(s).
  - (5) A copy of any information provided by the employee's supervisor.
- b. All records concerning an exposure incident including written documentation of the incident, laboratory findings, and written documentation of medical counseling shall be confidentially maintained in the NETL OHU.
- c. All records of regulated waste disposal shall be maintained by the NETL Records Center as required by state and local regulations. Those records shall include such items as monthly logs of generated waste and shipping manifests. A copy of the waste disposal record shall be maintained in the OHU.
- d. The OHU shall maintain a Sharps Injury Log for recording percutaneous injuries from contaminated sharps (reference NETL F 440.1-12/5, NETL Sharps Injury Log).

## ATTACHMENT A1-A

## POST-EXPOSURE EVALUATION AND FOLLOW-UP FLOW CHART



## ATTACHMENT B

## NETL RESPIRATORY PROTECTION

1. PURPOSE. To describe the roles, responsibilities, and requirements for NETL's Respiratory Protection Program, including the types, selection, training, maintenance, and use of respiratory protection equipment used at NETL.

This Attachment utilizes the respiratory protection provisions of the Lead Standard, Asbestos Standard, and 29 CFR 1910.134 (Respiratory Protection) Standard as guidance to implement NETL's Respiratory Protection Program.

2. CANCELLATION. This Attachment replaces all documents pertaining to NETL respiratory protection created prior to the NETL formation.

3. REFERENCES.

- a. Statutory ES&H Standards:

- (1) 29 CFR 1910.1025, Lead Standard.
- (2) 29 CFR 1910.134, Respiratory Protection.
- (3) 29 CFR 1910.135, Occupational Head Protection.
- (4) 29 CFR 1910, Subpart Z, Toxic and Hazardous Substances.
- (5) 29 CFR 1910.1001 and 29 CFR 1926.58, Asbestos.
- (6) 29 CFR 1910.1450, Occupational Exposure to Hazardous Chemicals in Laboratories.

- b. Reference ES&H Standards:

- (1) ANSI Standard Z88.2-1969, Practices for Respiratory Protection, revised 1980.
- (2) ANSI Standard Z89.1-1969, Protective Headwear for Industrial Workers - Requirements, revised 1997.

- c. Other References:

- (1) Fundamentals of Industrial Hygiene, National Safety Council, current version.
- (2) NIOSH Guide to Industrial Respiratory Protection.

4. DEFINITIONS.

- a. Air-Purifying Respirator -- A respirator with an air purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.
- b. ANSI -- American National Standards Institute.
- c. Atmosphere-Supplying Respirator -- A respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBAs) units.
- d. Canister -- A container with a filter, sorbent, or catalyst, or any combination thereof, which removes specific contaminants from the air drawn through it.
- e. Cartridge -- A small canister with a filter, sorbent, or catalyst, or any combination thereof, which removes specific contaminants from the air drawn through it.
- f. Contaminant -- A harmful, irritating, or nuisance material that is foreign to the normal atmosphere.
- g. ES&HD -- Environmental, Safety, and Health Division.
- h. Fit Testing -- Evaluation of sealing characteristics and performance of the respirator under controlled conditions while worn by the user.
- i. Grade D Breathing Air -- Air with an oxygen content between 19.5 percent and 23.5 percent by volume, carbon monoxide levels below 10 parts per million, carbon dioxide levels below 1000 parts per million, hydrocarbon (condensed) levels below 5 milligrams per cubic meter of air, and no noticeable odor.
- j. Harmful Atmosphere -- Any atmosphere with contaminant concentrations above OSHA PELs or ACGIH TLVs, in addition to atmospheres with recognized hazardous levels of contaminants.
- k. Leak Check -- An examination of the freshly cleaned and reassembled respirator to determine that the complete assembly is gas tight.
- l. MSHA -- Mine Safety and Health Administration.
- m. Negative Pressure Respirator -- An air-purifying respirator in which the air pressure inside the respiratory inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere.
- n. NIOSH -- National Institute for Occupational Safety and Health.



- o. OHU -- Occupational Health Unit. Consists of a facility and qualified staff that conduct health evaluations, examinations, treatment, information dissemination, and other health-related activities, which contribute to the health and well-being of NETL personnel.
- p. OSHA -- Occupational Safety and Health Administration.
- q. PEL -- Permissible Exposure Limit. The PEL is the 8-hour, time-weighted average exposure to a chemical that is not to be exceeded. (See 29 CFR 1910.1000 Subpart Z.)
- r. Positive Pressure Respirator -- A respirator in which the air pressure inside the respiratory inlet covering is positive in relation to the air pressure of the outside atmosphere during exhalation and inhalation.
- s. PPE -- Personal Protective Equipment. Specialized clothing or equipment worn by employees to act as a barrier to environmental stressors in order to reduce the potential for exposure or injury (e.g., hard hats, safety shoes, safety glasses, hearing protection, respirators).
- t. Pressure-Demand SCBA -- Respirator equipped with a bottled air supply. Positive pressure is maintained in the facepiece and additional air is supplied to fill the user's lungs on demand. The apparatus may have provision for the wearer to select the demand or pressure demand mode of operation.
- u. Qualified Employee -- An employee that meets the criteria of the personal physical condition set forth by the OHU and has received the proper training for the testing, maintenance, donning, and use of respirators.
- v. Respirator -- A device used to protect the wearer from the inhalation of dangerous atmospheres.
- w. RP -- Responsible person. For the purposes of this Attachment, the person assigned to a project/laboratory who has the responsibility for generating project or laboratory test plans and operating procedures that include PPE requirements for that project/laboratory.
- x. Sanitization -- The removal of dirt and the inhibition of the action of agents that cause infection or disease.
- y. SCBA -- Self-Contained Breathing Apparatus. A respirator which is supplied by a compressed air cylinder, carried by the trained wearer.
- z. SOP -- Standard operating procedures.
- aa. SSC -- Site Support Contractor.

- bb. TLV -- Threshold limit value. A time-weighted average under which most people can work for 8 hours a day, 5 days per week for an indefinite period without adverse effects. A table of these values are published annually by the American Conference of Governmental Industrial Hygienists.

## 5. QUALITY CONTROL.

- a. Respirators shall be routinely picked up for maintenance by the DOE or SSC industrial hygienist or designee.
- b. Respirators shall be inspected by the SSC industrial hygiene technician during cleaning. Worn parts shall be replaced.
- c. Respirators for emergency use shall be thoroughly inspected at least once a month and after each use. Air cylinders shall be fully charged according to the manufacturer's instructions. Proper functioning of the regulatory and warning devices shall be verified.
- d. NETL ES&H staff shall review SARS permit applications to assure that proper PPE is identified in SARS documentation, including standard operating procedures.
- e. NETL's ES&H assessors shall review SARS documentation annually to determine continued applicability of the authorization basis (e.g., permits).
- f. An annual audit of respirator maintenance, personnel training (including fit testing), and certification records shall be performed by the Respiratory Protection Program Manager to verify current certification and updated training of personnel. Respirator maintenance and inventory records shall be audited at this time.
- g. Location of emergency use SCBA and air-purifying respirators shall be verified biannually by the Respiratory Protection Program Manager.

## 6. RESPONSIBILITIES.

- a. Associate Directors shall ensure that adequate financial and personnel resources are available to implement this Attachment as applicable to their organizations.
- b. Line Managers shall:
  - (1) Ensure that workers understand and follow this Attachment's requirements regarding respirators and other related PPE, that respirators are available and in working order, and that appropriate training has been provided.
  - (2) Conduct workplace inspections, including routine inspections of emergency equipment.

- (3) Determine, in conjunction with the ES&H staff, which projects, operations, or facilities shall require respiratory protection.
- (4) Consult with the ES&H staff to determine the presence of air contaminants and the resulting respirator requirements.
- (5) Ensure that their employees are using appropriate respiratory protection.
- (6) With the assistance of the ES&H staff, ensure that respirator users receive instructions and training in the proper use of respirators, including their limitations.
- (7) Ensure that respirators are inspected, functional, and clean.
- (8) Ensure that users have been determined by the OHU to be physically able to perform the work while using the respiratory protection equipment.
- (9) Ensure that respirators are stored in a convenient, clean, and sanitary location.
- (10) Ensure appropriate surveillance of work area conditions to assess degree of employee exposure or stress while using respiratory protective equipment.
- (11) Assist in the regular inspection and evaluation of the program to determine its continued effectiveness.
- (12) Ensure worn or deteriorated parts are replaced.

c. OHU Staff shall:

- (1) Determine the physiological and psychological capabilities of the potential respirator user to certify that the user is fit to wear a respirator.
- (2) Conduct appropriate evaluations to determine that employees are physically able to wear respiratory protection and perform the work required.

d. Respiratory Protection Program Manager shall:

- (1) Administer NETL's respiratory protection program and specify the standards for respirators.
- (2) Coordinate different phases of the Respiratory Protection Program, including hazard assessment and control, selection of respiratory protective equipment, fit testing, cleaning, maintenance, storage, inspection, training of users, and documentation.

- (3) Act as QA Manager for the Respiratory Protection Program, prepare audit protocols, conduct audits, and report results to Line Management.
- (4) Review the NETL Respiratory Protection Program with ES&H staff to ensure technical compliance with the following standards: 29 CFR 1910.134, Respiratory Protection; 29 CFR 1926.58, Asbestos; and 29 CFR 1910 Subpart Z; to cover revisions of and additions to applicable regulatory requirements; and to discuss future applicable regulatory requirements.
- (5) Establish written SOPs governing the selection and use of respirators.
- (6) Maintain appropriate surveillance of work area conditions and degree of employee exposure or stress.
- (7) Conduct regular inspections and evaluations to determine the continued effectiveness of the program.
- (8) Designate those operations, activities, or facilities that generate OSHA-regulated and DOE-managed (through SOPs) air contaminants in sufficient quantity to require respiratory protection.

e. SSC ES&H Staff or designee shall:

- (1) Be responsible for supplying, inventorying, performing fit testing, maintaining records, inspecting, testing, and maintaining an adequate supply of air for the SCBA.
- (2) Develop SOPs for site-specific respiratory protection protocols (e.g., end of service life indicators, fit testing procedures, maintenance and care of respirators, etc.).
- (3) Maintain an inventory of respirator spare parts.
- (4) Maintain records of all maintenance performed and the disposition of all respirators and SCBA.
- (5) Analyze and evaluate hazards and/or potentially hazardous areas and provide consultation and advice as to the type of respiratory protection required.
- (6) Select approved or accepted respirators that provide adequate respiratory protection against the particular hazard for which it is designed in accordance with standards established by competent authorities.
- (7) Instruct and train users in the proper inspection, use, cleaning, maintenance, and storage of respirators and their limitations.

- (8) Help ensure a proper, functional, legal fit.
- (9) Provide annual respiratory protection training for all NETL respirator users; provide initial and quarterly refresher training for SCBA users.

f. Respirator Users shall:

- (1) Receive training from ES&H staff on the inspection, use, cleaning, maintenance, and storage of respirators.
- (2) Inspect their assigned respirator and filter cartridges (appropriate for the hazard to be encountered) prior to and immediately after use for defects or wear. If defects are found they shall be brought to the attention of ES&HD personnel immediately and the respirator taken out of service.
- (3) Replace any worn or deteriorated parts.
- (4) Utilize appropriate respiratory protection as required.
- (5) Receive medical approval annually from the occupational health physician.
- (6) Follow written SOPs governing the selection and use of respirators.
- (7) Ensure a proper, functional, legal fit with each and every usage of a respirator.

g. NETL Site Support Contractors shall implement, within their own workforce and workplace, the requirements set forth in this Attachment.

h. ES&H Training Coordinator shall ensure that training required under this Attachment is developed, delivered, and documented.

7. TRAINING REQUIREMENTS.

- a. Annual respiratory protection training shall be required for all NETL respirator users. This training on the proper inspection, use, cleaning, maintenance, and storage of respirators shall be given by the SSC ES&H staff.
- b. Wearers of SCBAs shall receive 4 hours of training and refresher training quarterly.

8. DOCUMENT CONTROL.

- a. The ES&H Training Team shall maintain the original training records of all respirator users.

- b. OHU shall maintain physical records of employees that have been examined for the capability of wearing a respirator.
- c. The Respiratory Protection Program Manager shall review and update this Attachment at least annually and as necessary to accommodate changing conditions at NETL and to ensure compliance with applicable regulatory requirements.
- d. The most recent and official controlled hard copy version of this Attachment shall reside with NETL's Directives Coordinator. An electronic version of this controlled Attachment shall be placed on the NETL Intranet for employee use. Printed hard copies of this Attachment (e.g., those printed from the Intranet) shall be considered non-controlled documents.

9. PROCEDURE.

- a. Use of Respirators -- The use of respiratory protective equipment for hazard controls will be adopted only when engineering and administrative controls are not feasible or effective.
- b. Respirator Types -- The list below documents the range of available respirators to NETL workers.

(1) Atmosphere-Supplying Respirator

- (a) Supplied air.
- (b) SCBA.
- (c) Combination type.

(2) Air-Purifying Respirator

- (a) Particulate-removing respirator.
- (b) Gas and vapor-removing respirator.
- (c) Combination particulate/gas and vapor-removing respirator.

c. Respirator/Cartridge Selection

- (1) Proper selection of respirators and cartridges shall be made according to the guidance of the American National Standard Institute Practices for Respiratory Protection Z88.2 (current version).
- (2) When work activities are suspected to involve contaminated ambient breathing air, the Respiratory Protection Program Manager or SSC ES&H staff shall be notified and shall determine the need for protection based on air testing and/or professional

judgment.

- (3) Respirators shall be selected on the basis of hazards to which the worker is exposed. The specific type of respirator and cartridge shall be noted on the PPE Hazard Assessment Sheet.
  - (4) Only respirators approved or accepted by the Respiratory Protection Program Manager shall be used. The furnished respirator shall provide adequate respiratory protection against the particular hazard for which it is designed in accordance with standards established by competent authorities (i.e., Mine Safety and Health Administration [MSHA] and National Institute of Occupational Safety and Health [NIOSH]).
- d. Respirator Training -- Users shall be instructed on the proper inspection, use, cleaning, maintenance, and storage of respirators and filters and their limitations. Training shall be conducted in accordance with NETL Procedure 450.4-8, ES&H Training Process.
  - e. Respirator Maintenance -- Manufacturer's instructions for inspection, cleaning, maintenance, and storage of respirators shall be followed to ensure respirator functionality.
  - f. Respirator Use
    - (1) Routine use.
      - (a) Respirators shall be issued only to those who are clean shaven (i.e., individuals having less than 1 day of facial hair growth) and have been issued medical clearance by the OHU staff to be capable of wearing them. Employees shall be properly trained prior to issuance.
      - (b) ES&H staff shall conduct annual fit testing (in accordance with 29 CFR 1910.134) of respirator-qualified personnel to help ensure that the respirator is able to provide a proper face seal.
      - (c) Employees shall not be assigned to tasks requiring use of respirators unless it has been determined that they are physically able to perform the work and use the equipment. The OHU staff shall determine what health and physical conditions are pertinent. The user's medical status shall be reviewed periodically.
      - (d) Surveillance of work area conditions shall be conducted and the degree of employee exposure shall be assessed.



- (2) Emergency use.
  - (a) Respirators for emergency use such as SCBA shall be thoroughly inspected at least once a month and after each use.
  - (b) Only certified Grade D breathing air shall be used for SCBAs.
  - (c) On SCBA, the compressed air cylinder shall be sufficiently charged for the intended use, preferably fully charged (mandatory on an emergency device). On open-circuit SCBA, the cylinder shall be recharged if less than 80 percent of the useful service time remains. However, it is much preferred that an open-circuit SCBAs be fully charged before use.
  - (d) Air-purifying respirators kept ready for non-routine or emergency use shall be stored in a cabinet in individual compartments labeled with the user's name. The cabinet shall be readily accessible, and affected workers shall be made aware of its location. In addition, this type of storage can be used for routinely used respirators at the Line Manager's discretion.
- g. Disposal -- Cartridges that may have been exposed to hazardous materials shall be disposed of by the SSC ES&H staff in accordance with local, state, and Federal regulations and NETL's directives related to waste management.
- h. Signage -- A notification sign shall be posted in work areas that require the use of respirators.



## ATTACHMENT C

## NETL HEARING CONSERVATION

1. PURPOSE. To establish the roles, responsibilities, and requirements for the Hearing Conservation Program (HCP) at NETL. The primary goal of the HCP is the prevention of hearing loss caused by workplace noise exposure.
2. CANCELLATION. This Attachment replaces all documents pertaining to NETL Hearing Conservation created prior to the NETL formation.
3. REFERENCES.
  - a. NETL Procedure 440.1-14, NETL Workplace Monitoring.
  - b. Statutory ES&H Standards:
    - (1) 29 CFR 1910.95, Occupational Noise Exposure.
    - (2) 29 CFR 1910.1020, Access to Employee Exposure and Medical Records.
    - (3) 29 CFR 1926.52, Occupational Noise Exposure.
  - c. Reference ES&H Standards:
    - (1) American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, current edition.
    - (2) ANSI S1.4-1983, Specifications for Sound Level Meters, current version.
    - (3) ANSI S1.4a-1985, Sound Level Meters, current version.
    - (4) ANSI S3.1-1977(R1999), Maximum Permissible Ambient Noise Levels for Audiometric Test Rooms, current version.
    - (5) ANSI S 3.6-1996, Specifications for Audiometers, current version.
  - d. Other References:
    - (1) Lipscomb, David L., Ed., Hearing Conservation in Industry, Schools, and the Military, Little, Brown, and Company, 1988.

- (2) Berger, E. H., Ward, W. D., Morrell, J. C., Royster, L. H., Ed., Noise and Hearing Conservation Manual, American Industrial Hygiene Association, 1988.

4. DEFINITIONS.

- a. Action Level -- An 8-hour, time-weighted average of 85 decibels measured on the A scale, slow response, or equivalently, a dose of 50 percent of standard.
- b. ANSI -- American National Standards Institute.
- c. Attenuation -- The amount (in decibels) by which sound volume is reduced.
- d. Audiogram -- A chart, graph, or table resulting from an audiometric test showing an individual's hearing threshold levels as a function of frequency.
- e. Baseline Audiogram -- The initial audiogram against which future audiograms are compared.
- f. dBA -- The measurement of sound level (decibel) as measured on the A scale of a sound level meter.
- g. Dosimeter -- An instrument for the measurement of sound, commonly used for personal monitoring, that integrates a function of sound pressure over a period of time in such a manner that it directly indicates a noise dose.
- h. ES&HD -- Environmental, Safety, and Health Division.
- i. HCP -- Hearing Conservation Program.
- j. Hertz -- Sound frequency measured in cycles per second (cps). One cps = 1 Hz.
- k. HPD -- Hearing protection devices. Hearing protection devices include ear plugs which fit into the ear canal or ear muffs which surround the outer ear.
- l. Line Manager -- One in charge of a department, division, group, or any functional work unit that directs, coordinates, or oversees the work and performance of others to varying degrees.
- m. OHU -- Occupational Health Unit. Consists of a facility and qualified staff that conduct health evaluations, examinations, treatment, information dissemination, and other health-related activities, which contribute to the health and well-being of NETL personnel.
- n. OSHA -- Occupational Safety and Health Administration.

- o. RP -- Responsible Person. For the purposes of this Attachment, the person assigned to a project/laboratory who has the responsibility for generating project or laboratory test plans and operating procedures that include PPE requirements for that project/laboratory.
- p. Significant Threshold Shift -- A change in hearing threshold relative to the baseline audiogram of an average of 25 dB or more at 2,000, 3,000, and 4,000 Hertz in either ear.
- q. Sound Level Meter -- An instrument for the measurement of sound, commonly used for area noise monitoring.
  - (1) **Type 1 Sound Level Meter** -- Precision-type instrument intended for accurate measurements in the field and laboratory.
  - (2) **Type 2 Sound Level Meter** -- An instrument with more lenient design tolerances than Type 1, intended for general field use, particularly in applications where high-frequency (over 10k Hz) sound components do not dominate.
- r. SSC -- Site Support Contractor.
- s. STS -- Standard Threshold Shift. A change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 2,000, 3,000, and 4,000 Hertz in either ear.
- t. TWA Sound Level -- Time-weighted average sound level. That sound level, which if constant over an 8-hour exposure, would result in the same noise dose as is measured.

## 5. QUALITY CONTROL.

- a. Line Managers shall inspect the area(s) under their control for potential noise hazards and to ensure that NETL site employees are properly using hearing protection assigned to them.
- b. The SSC ES&H staff shall verify the calibration of sound level meters and dosimeters at least annually in accordance with NETL Procedure 440.1-14, NETL Workplace Monitoring.

## 6. RESPONSIBILITIES.

- a. The Occupational Physician shall:
  - (1) Evaluate and make recommendations on all problem audiograms.
  - (2) Make follow-up recommendations for NETL site employees that must be sent for further audiological and/or medical evaluation.

b. The OHU shall:

- (1) Schedule and conduct baseline and annual audiometric testing based on input from the Line Manager and DOE and SSC Industrial Hygiene staff.
- (2) Perform an evaluation of all potential users of HPDs to determine if any physical factors are present which would preclude the safe use of HPDs.
- (3) Maintain all audiological testing equipment and ensure all applicable calibrations are conducted in accordance with 29 CFR 1910.95 and the NETL Procedure 440.1-14, NETL Workplace Monitoring.
- (4) Maintain individual NETL site employee exposure monitoring records and all audiometric testing records as part of the NETL site employee's medical records. These shall be maintained for the employee's duration of employment plus 30 years.
- (5) Notify the NETL site employee in writing within 21 days of testing when such testing shows a standard threshold shift for that employee and inform the employee of the need for an exam if a problem unrelated to the HPD usage is suspected.
- (6) When a standard threshold shift exists, arrange a consultation between the NETL site employee, Occupational Physician, and Industrial Hygienist to assess the employee's exposures.
- (7) Provide instruction in the proper insertion and care of hearing protection devices.
- (8) Consult with DOE and SSC Industrial Hygienists prior to issuing a new type of hearing protection.

c. DOE and SSC Industrial Hygiene Staff shall:

- (1) Schedule and perform area and personal noise surveys when tasked.
- (2) Provide the OHU and affected Line Managers with a copy of NETL site employees' exposure monitoring results for inclusion into employee medical records and a list of NETL site employees to be included in the HCP.
- (3) Maintain all equipment (including calibration) used to perform area and personal noise exposure monitoring.
- (4) Determine appropriate type of HPD and provides fitting and instruction in the use of hearing protection.

- d. ES&H Training Team shall:
- (1) Schedule and perform hearing conservation training.
  - (2) Maintain records of NETL site employee attendance at the annual hearing conservation training.
- e. Line Managers shall:
- (1) Ensure compliance of their employees with the use of proper and/or required hearing protectors.
  - (2) Conduct audits to determine if employees are properly using hearing protection. Ensure that deficiencies are tracked (e.g., in the NETL Corrective Action Tracking System) and resolved.
  - (3) Arrange for staff to be trained in the proper use of hearing protection.
  - (4) Notify affected employees when a change in noise level in an area is suspected.
  - (5) Notify DOE and SSC Industrial Hygiene staff of any new equipment that may need to be evaluated for noise exposure.
- f. Responsible Persons shall:
- (1) Notify the DOE and/or SSC Industrial Hygienist staff of the need to conduct initial noise survey for a new project or area operation.
  - (2) Notify the DOE and/or SSC Industrial Hygienist staff of the change in noise level in an area and request new noise level measurements be conducted.
- g. Employees shall:
- (1) Wear their hearing protection when working in areas posted as requiring hearing protection.
  - (2) Attend all applicable training.
  - (3) Report to the OHU when assigned for their baseline or annual audiogram.

## 7. TRAINING REQUIREMENTS.

- a. A Hearing Conservation Training Program shall be implemented at NETL for NETL site employees who are exposed to noise at or above the action level of an 8-hour, time-weighted average of 85 dB.

- b. The training program shall be repeated annually for each worker included in the HCP. Information provided in the training program shall be updated to be consistent with changes in protective equipment and work processes.
- c. NETL shall ensure that each worker is informed of the following during the training:
  - (1) The effects of noise on hearing.
  - (2) The purpose of hearing protectors; the advantages, disadvantages, and attenuation of various types; and instructions on selection, fitting, use, and care.
  - (3) The purpose of audiometric testing and an explanation of the test procedures.
  - (4) Details of this Attachment.
- d. A copy of 29 CFR 1910.95 shall be made available to affected workers or their representatives.
- e. Affected workers shall be provided with any informational materials pertaining to 29 CFR 1910.95 that are supplied to the employer by the Assistant Secretary of Labor.
- f. The employer shall provide, upon request, all materials related to the employer's training and education program pertaining to 29 CFR 1910.95 to the Assistant Secretary of Labor and the Director of OSHA.

8. DOCUMENT CONTROL.

- a. Copies of all exposure monitoring information including calibration records, field notes, monitoring results, and recommendations for exposure reduction shall be maintained by the OHU for the duration of the affected employee's employment plus 30 years.
- b. Copies of all audiometric testing, physician recommendations, employee notifications, and audiometer and sound level booth calibrations shall be maintained by the SSC OHU for the duration of the affected employee's employment plus 30 years.
- c. The Hearing Conservation Program Manager shall review and update this Attachment at least annually and as necessary to accommodate changing conditions at NETL and to ensure compliance with applicable regulatory requirements.
- d. The most recent and official controlled hard copy version of this Attachment shall reside with NETL's Directives Coordinator. An electronic version of this controlled Attachment shall be placed on the NETL Intranet for employee use. Printed hard copies of this Attachment (e.g., those printed from the Intranet) shall be considered non-controlled documents.

## 9. PROCEDURE.

### a. Hearing Conservation Program (HCP)

- (1) For purposes of the HCP, worker noise exposure shall be computed in accordance with 29 CFR 1910.95, Appendix A and Table G-16, and without regard to any attenuation provided by the use of PPE for any worker who operates in a noisy environment which could potentially pose exposures over the Action Limit of 85 dBA, based on an 8-hour TWA.
- (2) A worker shall be included in the HCP if his/her noise exposures equal or exceed an 8-hour TWA sound level of 85 dB measured on the A scale (slow response).
- (3) Workers who must temporarily be in an area where noise is present (e.g., greater than 85 dB measured on the A scale) or who must perform transient work involving exposure to noise shall use the hearing protection provided at the work site. If any worker is working in an area where there is exposure to noise (e.g., greater than 85 dB measured on the A scale) and the worker will be in that area for 8 or more hours per week, the worker must be included in the HCP.
- (4) If a worker becomes included in the HCP, the worker shall:
  - (a) Be given a baseline audiogram within 6 months and annually thereafter.
  - (b) Be trained in the use of hearing protection devices.
  - (c) Receive hearing conservation training at the next earliest scheduled training session.

### b. Sound Level Surveys -- A site characterization and industrial hygiene survey shall be conducted for those areas for which there is reason to believe that there has been, is, or will be a potential noise overexposure. See NETL Procedure 440.1-14, NETL Workplace Monitoring, for further information.

### c. Engineering Controls -- Engineering controls shall be used whenever feasible as the initial control method to reduce sound levels to the levels of Table G-16, Appendix A of 29 CFR 1910.95.

### d. Administrative Controls -- Administrative controls shall be used secondarily to engineering controls as a control method to reduce sound levels to the levels of Table G-16, Appendix A of 29 CFR 1910.95.

### e. Personal Protective Equipment

- (1) When engineering and administrative controls fail to reduce sound levels to the levels of Table G-16, Appendix A of 29 CFR 1910.95, personnel shall be required to wear personal hearing protection for the entire work shift when working in



areas where the 8-hour TWA sound level (or its equivalent) equals or exceeds 85 dBA.

- (2) Several types of hearing protection devices shall be made available to workers from the OHU, DOE and SSC Industrial Hygiene staff; Hearing Conservation Program Managers; and Contractor Safety Managers. NETL Hearing Conservation Program Managers and/or Industrial Hygienist(s) shall make the determination as to which hearing protection device is appropriate for an area/project in accordance with 29 CFR 1910.95, Appendix B.
  - (3) Ear plugs shall be placed at the work site in locations that are posted as "Hearing Protection Required" areas or in areas where noise is known to exist periodically. The specific locations shall be selected by NETL Hearing Conservation Program Managers and/or Industrial Hygienist(s).
  - (4) If there is any change in the work process, the current hearing protection being used shall be evaluated and, if it is inadequate, new protectors shall be selected. Adequate hearing protection attenuation shall be determined in accordance with 29 CFR 1910.95, Appendix B.
  - (5) Mandatory hearing protection is required for persons working in areas whenever:
    - (a) Area is posted as requiring hearing protection.
    - (b) Noise levels exceed 85 dBA.
    - (c) Existing noise levels impose obvious discomfort.
- f. Audiometric Testing -- Workers in areas where the 8-hour TWA equals or exceeds 85 dBA shall be included in the audiometric testing program conducted by the OHU.
- g. Employee Notification -- Workers who are included in the HCP shall be notified of:
- (1) Areas requiring hearing protection through posting designations.
  - (2) The results of noise monitoring.
  - (3) His/her most recent noise exposure assessment.
  - (4) The mandatory requirement to wear personal hearing protection for the entirety of the work shift, if working in an area where the 8-hour TWA sound level (or its equivalent) is greater than or equal to 85 dBA.
  - (5) The following information concerning audiograms:
    - (a) The date, time, and place that the annual audiogram shall be given. This may be included in the scheduling of the worker's annual physical.



- (b) If a comparison of the baseline and annual audiogram indicates a standard threshold shift, the worker shall be informed of the new audiometric interpretation.
- (c) Prior to baseline audiometric examination, workers shall be informed about the requirement for having 14 hours free of workplace noise (hearing protection may be used as a substitute for noise-free 14 hours) and shall be advised to avoid high-level, non-occupational noise.
- (d) Prior to retest audiometric examination, workers shall be informed of the need to avoid non-occupational noise.

h. HCP Records Retention

- (1) All records retained under this HCP shall be provided upon request to workers, former workers, representatives designated by the individual worker, and the Assistant Secretary of Labor. The provisions of 29 CFR 1910.1020 also apply to access of these records.
- (2) If the employer ceases to do business, the employer shall transfer to the successor employer all records required to be maintained. The successor employer shall retain them for the remainder of the required period.
- (3) The NETL and/or SSC Industrial Hygienists shall maintain accurate records of all worker exposure measurements.
- (4) The OHU shall maintain accurate measurement records of the background sound pressure levels in the soundproof booth or test room used for audiometric testing.
- (5) The OHU shall maintain all NETL site employee audiometric test records.
- (6) The ES&H Training Office shall maintain records of attendance for the annual hearing conservation training.

i. Visitors -- Visitors shall be provided with ear plugs as required.

j. Check-Out -- Protective hearing devices shall be checked by the wearer prior to and immediately after use.

k. Single-Use Ear Plugs -- Single-use ear plugs shall be discarded after each use and new plugs shall be issued as required by the OHU, the Hearing Conservation Program Manager, or NETL/SSC Industrial Hygienists.

## ATTACHMENT D

NETL PERSONAL PROTECTIVE EQUIPMENT --  
EYE, FACE, HAND, HEAD, AND FOOT PROTECTION

1. PURPOSE. To define the requirements for issuing, utilizing, inspecting, and maintaining personal protective equipment (PPE)/specialized clothing for protecting employees, research associates, and visitors at NETL from exposure to physical, chemical, environmental, and electrical hazards.
2. CANCELLATION. This Attachment replaces all documents pertaining to NETL personal protective equipment created prior to the NETL formation.
3. REFERENCES.
  - a. NETL Procedure 440.1-3, Handling, Storage, Use, Transportation, and Control of Hazardous Materials.
  - b. NETL Procedure 450.4-11, ES&H Signs, Labels, and Identifiers.
  - c. Form: NETL F 440.1-12/6, Prescription Safety Glasses/Safety Shoes Request.
  - d. Statutory ES&H Standards:
    - (1) 29 CFR 1910.132, General Requirements for PPE.
    - (2) 29 CFR 1910.133, Eye and Face Protection.
    - (3) 29 CFR 1910.135, Occupational Head Protection.
    - (4) 29 CFR 1910.136, Occupational Foot Protection.
    - (5) 29 CFR 1910.137, Electrical Protective Equipment.
    - (6) 29 CFR 1910.138, Hand Protection.
    - (7) 29 CFR 1910.1020, Access to Employee Exposure and Medical Records.
    - (8) 29 CFR 1910.1450, Occupational Exposures to Hazardous Chemicals in Laboratories.
    - (9) 29 CFR 1926.95, Criteria for Personal Protective Equipment.
    - (10) 29 CFR 1926.96, Occupational Foot Protection.
    - (11) 29 CFR 1926.100, Head Protection.

## e. Reference ES&amp;H Standards:

- (1) ANSI Z41.1-1991 (or latest revision), Personal Protection - Protective Footwear.
- (2) ANSI Z49.1-1983 (or latest revision), Safety in Welding and Cutting.
- (3) ANSI Z87.1-1989 (or latest revision), Occupational and Educational Eye and Face Protection.
- (4) ANSI Z89.1 (latest revision), Protective Headwear for Industrial Workers - Requirements.
- (5) American Conference of Governmental Industrial Hygienist (ACGIH), Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, current edition.

4. DEFINITIONS.

- a. ANSI -- American National Standards Institute.
- b. CHO -- Chemical Hygiene Officer. The designated NETL employee responsible for the oversight of the NETL Chemical Hygiene Plan.
- c. Class I Activities -- Operations in which exposure or contact with hazardous tars, oils, solvents, or similar materials cannot be avoided through use of engineering controls or operating procedures.
- d. Class II Activities -- Operations in which engineering controls or operating procedures eliminate all but accidental exposure to hazardous tars, oils, solvents, or similar materials.
- e. Class III Activities -- Operations with no possible exposure to hazardous tars, oils, solvents, or similar materials.
- f. Contaminant -- A harmful, irritating, or nuisance material that is foreign to the normal atmosphere.
- g. Controlled Clothing -- Clothing, typically orange in color, designed to protect personnel from contact with known or potentially carcinogenic tars, oils, solvents, or similar materials. Lab coats, coveralls, or other appropriate clothing may also be used in areas that are potentially contaminated with tars, oils, solvents, or similar materials.
- h. Controlled Footwear -- Shoes dedicated to use, or disposable shoe covers approved for use, while handling hazardous tars, oils, solvents, or similar materials.
- i. Coverall -- A one-piece uniform to be worn over work clothes to protect the wearer from

- dirt and contamination.
- j. CWC -- Central Work Control.
  - k. Designated ES&HD PPE Managers/Purchasers -- NETL employees, assigned by the ES&HD Director, to manage the purchasing, issuance, specifications, and supply maintenance of specialized PPE, such as prescription safety glasses and safety shoes.
  - l. Disposable Garments -- Single-use paper or Tyvek clothing approved for use when handling hazardous tars, oils, solvents, or similar materials.
  - m. Disposable Gloves -- Single-use gloves suitable to protect from the material being handled according to the MSDS sheets.
  - n. Double Gloving -- The practice of utilizing two gloves on each hand for increased personal protection in certain applications.
  - o. ES&HD -- Environmental, Safety, and Health Division.
  - p. Eye Protection -- Includes prescription and nonprescription safety glasses, goggles, face shields, and similar devices. Eye protection DOES NOT include the use of contact lenses.
  - q. Face Shield -- A protective device intended to shield the wearer's face, or portions thereof, in addition to the eyes from certain hazards. Note: Face shields are secondary protectors and will be used only with primary protectors.
  - r. Gloves -- Hand covers worn to protect the wearer from physical, chemical, electrical, and environmental hazards.
  - s. Goggles -- A protective device intended to fit the face immediately surrounding the eyes in order to shield the eyes from a variety of hazards.
  - t. Hard Hat -- Headgear conforming to ANSI Standard Z89.1-1986 and later revisions. They are rigid head gear of varying materials designed to protect the wearer's head, scalp, neck, and face.
  - u. Lab Coat -- A long coat or smock that is worn over work clothes to protect the wearer from contamination and chemical splashes.
  - v. Lens -- The transparent part of a protective device through which the wearer sees.
  - w. OSHA -- Occupational Safety and Health Administration.

- x. PPE -- Personal Protective Equipment. Specialized clothing or equipment worn by employees to act as a barrier to environmental stressors in order to reduce the potential for exposure or injury (e.g., hard hats, safety shoes, safety glasses, hearing protection, respirators).
- y. Primary Protector -- A protective device which may be worn alone or in conjunction with a secondary protector.
- z. Protective Footwear -- Footwear containing a protective toe box that is specially designed and manufactured to meet the performance requirements of ANSI Standard Z41.1-1967 and later revisions. Also called safety toe shoes.
- aa. RP -- Responsible Person. For the purposes of this Attachment, the person assigned to a project/laboratory who has the responsibility for generating project or laboratory test plans and operating procedures that include PPE requirements for that project/laboratory.
- bb. Safety Glasses -- Glasses certified to meet the impact requirements of ANSI Standard Z87.1-1969 and later revisions which requires a minimum lens thickness of 3 mm impact resistance requirements, passage of a flammability test, and lens retaining frames.
- cc. Secondary Protector -- A protective device which will be worn only in conjunction with a primary protector.
- dd. Side Shield -- A device commonly attached to spectacles that provides side exposure protection to the eye.
- ee. Spectacle -- A protective device to shield the wearer's eyes from a variety of hazards.
- ff. SSC -- Site Support Contractor.
- gg. Substantial Footwear -- The equivalent of leather oxfords or any other footwear providing more protection to the feet than canvas-topped shoes, open-toed shoes, or sandals.
- hh. Tars, Oils, Solvents, and Similar Materials -- Those tars, oils, solvents, and other similar materials as determined to be hazardous according to the Chemical Hygiene Officer.
- ii. Welding Helmet -- A protective device intended to shield the eyes and face from optical radiation and impact. Note: The welding helmet is a secondary protector and will be used only in conjunction with primary protectors.

## 5. QUALITY CONTROL.

- a. Line Managers shall periodically inspect areas under their supervision to ensure that appropriate personal protective clothing/equipment is being used by all employees working in the area.

- b. The Chemical Hygiene Officer shall review and make changes in the list of tars, oils, solvents, and other similar materials designated as being carcinogenic or potentially carcinogenic material.
- c. Required PPE shall be identified in through OSHA PPE assessments and posted on area Notice signs. Required PPE shall be documented in the SARS packages and standard operating procedures. Signs will be posted in accordance with NETL Procedure 450.4-11, ES&H Signs, Labels, and Identifiers.
- d. NETL ES&HD shall review the SARS permit applications and assure that the proper PPE is identified in both SARS documentation and any standard operating procedures.
- e. SSC ES&H staff shall evaluate annually the PPE supplies for applicability and serviceability to determine if alternatives are required.
- f. NETL's ES&H assessors shall review SARS documentation annually to determine continued applicability of the authorization basis (e.g., permits).

6. RESPONSIBILITIES.

- a. Associate Directors shall ensure that adequate financial and personnel resources are available to implement this Attachment as applicable to their organizations.
- b. Line Managers shall:
  - (1) Ensure that their employees know and follow this directive regarding the availability and use of PPE for eye, face, head, hand, foot, and dermal protection, that protective equipment is available and in working order, and that appropriate training has been identified and provided.
  - (2) Periodically inspect areas under their supervision to ensure that appropriate personal protective clothing/equipment is being used by all employees working in the area. Ensure that deficiencies are tracked (e.g., in the NETL Corrective Action Tracking System) and resolved.
  - (3) Determine, in conjunction with the ES&HD staff and through mechanisms such as the SARS processes and job task analyses, which projects/activities/areas shall require PPE for eye, face, head, hand, foot, and dermal protection and which projects/activities/areas shall be posted as requiring this PPE.
  - (4) Request assistance, as needed, from the appropriate ES&H specialists for the analysis, evaluation, and control of the working environment in areas that have a reasonable, but unverified, potential for the presence of hazardous conditions that could necessitate the use eye, face, head, hand, foot, and dermal PPE.

- (5) Ensure proper referencing of protective equipment requirements in their work areas through appropriate warning signs and through procedural documents (standard operating procedures, etc.).
  - (6) Submit requests for designated PPE to designated ES&HD PPE Managers/Purchasers for approval.
  - (7) Ensure that their employees, whose work involves potential exposure to hazards, have received appropriate training.
- c. The ES&HD Director shall:
- (1) Ensure that ES&H staff assistance is provided, as required, in identifying the types of activities requiring specialized protective clothing and/or eye, face, head, hand, foot, and dermal PPE.
  - (2) Ensure that ES&H staff assistance is provided in the developing standards and requirements for specialized clothing and/or eye, face, head, hand, foot, and dermal PPE.
  - (3) Assign NETL's designated ES&HD PPE Managers.
- d. The ES&H Division shall:
- (1) Review the SARS permit applications and assure that the proper PPE is identified in both the SARS documentation and any standard operating procedures.
  - (2) Review SARS documentation annually to determine continued applicability of the authorization basis (e.g., permits).
- e. Chemical Hygiene Officer shall:
- (1) Identify the tars, oils, solvents, and similar materials that, upon physical contact, are hazardous or carcinogenic.
  - (2) Assist Line Managers and the designated ES&HD PPE Managers in classifying activities that require the use of specialized clothing and/or eye, face, head, hand, foot, and dermal PPE, including Class I and Class II areas.
  - (3) Assist Line Managers in determining what facilities are required to store controlled and protective equipment.
  - (4) Develop the standards and requirements for specialized clothing.
  - (5) Ensure that the available specialized clothing meets NETL requirements.



- f. Designated ES&HD PPE Managers/Purchasers shall:
- (1) Assist in identifying the types of activities requiring protective equipment (i.e., eye, face, head, hand, foot, and dermal PPE).
  - (2) Approve purchase orders for safety glasses and safety shoes.
  - (3) Specify the standards for eye, face, head, hand, foot, and dermal PPE.
  - (4) Analyze and evaluate hazards and/or potentially hazardous areas and provide consultation and advice (e.g., to Line Managers) as to the eye, face, head, hand, foot, and dermal PPE required.
  - (5) Assist Line Managers in posting all areas where eye, face, head, hand, foot, and dermal PPE is required.
- g. The SSC ES&H Staff shall:
- (1) Evaluate annually the PPE supplies for applicability and serviceability to determine if alternatives are required.
  - (2) Maintain a supply of general eye, face, head, hand, foot, and dermal PPE for the NETL site.
  - (3) Provide training to employees required to wear protective clothing and/or eye, face, head, hand, foot, and dermal PPE, including the proper use and inspection of PPE items.
- h. Responsible Person shall:
- (1) Include in SARS documentation and standard operating procedures, the eye, face, head, hand, foot, and dermal PPE requirements for the project.
  - (2) Review any standard operating procedure having PPE requirements with the operating personnel, familiarizing them with the required PPE.
  - (3) Ensure that proper signs are posted in the area.
  - (4) Maintain any necessary local stock of eye, face, head, hand, foot, and dermal PPE, such as gloves and other protective garments, etc.
- i. Employees shall:
- (1) Comply with the policies and procedures concerning the use of specialized protective clothing and eye, face, head, hand, foot, and dermal PPE in designated



areas, and conduct work in a safe and healthful manner following the requirements of this Attachment.

- (2) Inspect protective clothing and PPE prior to and immediately after use to ensure it is in good condition.
- (3) Use the required PPE in designated hazardous areas when specified by a SOP, hazard warning, personal protection notices, or safety signs or as dictated by Line Management or common sense.
- (4) Receive training in the proper use of PPE.
- (5) Properly maintain all issued protective clothing and eye, face, head, hand, foot, and dermal PPE.
- (6) Turn in any damaged or non-functioning clothing or eye, face, head, hand, foot, and dermal PPE to the Line Manager or DOE/SSC ES&H staff and obtain a replacement.
- (7) Report to their line supervisor any equipment or procedure deficiency which does or could result in an unsafe situation.

- j. NETL Site Support Contractors shall implement, within their own workforce and workplace, the requirements set forth in this Attachment.

## 7. TRAINING REQUIREMENTS.

All employees required to wear protective clothing and/or eye, face, head, hand, foot, and dermal PPE shall, as appropriate, receive training regarding the requirements outlined in this Attachment, including the proper use and inspection of PPE items.

## 8. DOCUMENT CONTROL.

- a. The CHO shall make a list of hazardous tars, oils, solvents, or similar materials and a list of Class I and Class II activities. He/she shall update these lists annually, and he/she is responsible for retaining and posting these lists.
- b. The assigned ES&H Program Manager shall review and update this Attachment at least annually and as necessary to accommodate changing conditions at NETL and to ensure compliance with applicable regulatory requirements.

- c. The most recent and official controlled hard copy version of this Attachment shall reside with NETL's Directives Coordinator. An electronic version of this controlled Attachment shall be placed on the NETL Intranet for employee use. Printed hard copies of this Attachment (e.g., those printed from the Intranet) shall be considered non-controlled documents.

- 9. PROCEDURE. PPE (e.g., for eye, face, head, hand, foot, and skin protection) shall be used when engineering or administrative controls cannot be adopted to sufficiently control the hazards of a process or the environment. PPE shall only be used when other forms of hazard control are infeasible or ineffective, during the development or installation of engineering controls, or as a supplement to other controls to reduce exposure to acceptable levels.

- a. Protective Clothing -- It is important that each operation be analyzed to ensure that adequate clothing protection is used. When operations that involve potential hazard due to skin contact are performed routinely, the SARS documentation and the SOP for the operation shall indicate the level of protection required.
  - (1) For Class I activities, disposable gloves, controlled outer clothing (i.e., coveralls), and controlled footwear shall be required. In addition, face and/or head protection may be required as determined by the CHO upon review of the individual activity.
  - (2) For Class II activities, controlled gloves and clothing shall be required depending on the likelihood of contamination.
  - (3) For Class III activities, there are no specialized clothing requirements (i.e., only those clothing requirements dictated by other relevant NETL Procedures pertain).
  - (4) All employees, researchers, contractors, and visitors shall be required to comply fully with these clothing requirements.
  - (5) In the event of a spill of a carcinogenic or potentially carcinogenic material, controlled clothing shall be worn and the spill reported to Security or the Emergency Response Organization to coordinate required cleanup.
  - (6) To obtain specialized clothing, consult with the CHO or designated ES&HD PPE Managers/Purchasers to determine specific needs.
  - (7) Donning and removing controlled and protective clothing.
    - (a) Controlled clothing shall be donned and removed within the designated controlled clothing change area as designated by the CHO.

- (b) When removing controlled clothing, all articles should be “peeled” off in a manner so that they are “inside out” after removal. Care must be taken to avoid contact between unexposed skin and the outside of the controlled garment to the greatest extent possible.
  - (c) After removal of all controlled and protective clothing, hands and face shall be washed with soap and water.
- (8) Disposition of soiled and contaminated controlled and protective clothing.
  - (a) Single-use garments shall be bagged and disposed of by the SSC ES&H in accordance with EPA regulations.
  - (b) Reusable garments shall be inspected by the employee to determine if they have become soiled.
  - (c) Reusable garments that are soiled shall be collected in a plastic laundry bag, sealed, and marked “DIRTY - RETURN TO STOREROOM.” When enough garments are accumulated, the employee should return them to the Storeroom. The SSC shall then send the dirty garments for cleaning.
  - (d) Reusable garments that are not soiled must be returned to their storage racks/lockers for reuse until soiled.
  - (e) After removal or handling of controlled or protective clothing, hands and other exposed skin must be washed thoroughly with soap and water.
- (9) General purpose laboratory coats and coveralls.
  - (a) General purpose laboratory coats and coveralls shall be inspected by the wearer prior to use. There should be no tears, holes, frayed collars or cuffs, and there should not be any signs of wear.
  - (b) Any defects in the coverall or laboratory coat shall require repair. The coverall or laboratory coat shall be tagged with the required repair and removed from service until repairs can be made.
  - (c) Cleaning of laboratory coats and coveralls shall be done by a qualified outside vendor.
  - (d) Contaminated laboratory coats or coveralls shall be labeled as hazardous material and should be removed from service immediately.
  - (e) Laboratory coats shall be long length, long sleeved, and of an appropriate size for the individual. Coats shall be individually assigned.

- (f) Coveralls are primarily designed as a protection for clothing and should be worn over street clothes.
  - (g) Clothing made of materials capable of melting onto the skin (including undergarments) or developing a static charge should be avoided, especially for areas and operations where flammable solvents or gases are used. One hundred percent cotton is recommended.
- (10) Special purpose laboratory coats and coveralls.
  - (a) Special purpose coveralls, laboratory coats (flame retardant, flame proof), and jackets used for welding, cutting, and grinding are to be inspected for integrity prior to each use. They are to be stored separately from the general purpose coveralls and laboratory coats and be issued only to those authorized to wear them.
  - (b) Special purpose laboratory coats and coveralls shall be cleaned by a qualified outside vendor and shall be cleaned in such a way as not to remove the flame retardant quality of the garments. They shall be treated with flame-proof chemicals yearly or sooner if required.
  - (c) The vendor shall be informed of the types of materials which may have contaminated the garments. An MSDS shall be provided to the vendor for each potential contaminant.
- (11) General attire.
  - (a) Shorts, short skirts, and other clothing which needlessly exposes skin to laboratory and plant hazards are prohibited. Short-sleeve shirts and blouses are acceptable.
  - (b) Loose clothing and jewelry and uncontained long hair should be avoided in laboratory and plant areas and any areas where machinery with exposed moving parts are in use.
  - (c) Typical business attire offers suitable protection for those who rarely enter laboratory or project areas.
- (12) Alterations. Laboratory coats and coveralls shall not be altered by the user except to improve the fit. Removing collars, cutting the sleeves, or any other alteration reducing the protection afforded by the garment is strictly forbidden.
- (13) Disposable garments.
  - (a) Disposable outer garments may, in some cases, be preferable to reusable ones. One such case is that of handling appreciable quantities of known

hazardous materials. Another case would be for visitors spending only a few hours or a few days in the laboratory and/or plant areas.

- (b) When applicable, the SOP describing an activity shall state whether disposable garments are required or recommended.

b. Eye/Face Protection

- (1) NETL shall provide for the eye/face protection (as determined primarily through OSHA PPE assessments, safety analysis, and reviews or job task analyses) of NETL employees, research associates, and visitors according to the following minimum requirements:
  - (a) They shall provide adequate protection against the particular hazards for which they are designed.
  - (b) They shall be reasonably comfortable when worn under the designated conditions.
  - (c) They shall fit snugly and shall not unduly interfere with the movements of the wearer.
  - (d) They shall be checked for lens and assembly integrity prior to each use.
  - (e) They shall be cleaned and disinfected according to manufacturer's instructions.
  - (f) They shall be kept clean to avoid obstructed vision.
  - (g) Every protector shall be distinctly marked to facilitate identification of the manufacturer. When limitations or precautions are indicated by the manufacturer, they shall be transmitted to the user and care will be taken to see that such limitations and precautions are strictly observed. Design, construction, testing, and use of devices for eye and face protection shall be in accordance with ANSI Standard for Occupational and Educational Eye and Face Protection, Z87.1.
- (2) Types of eye and face protective devices. It is important that each operation be analyzed to ensure that adequate eye protection is used. When operations that involve potential hazard to the eyes are performed routinely, the SARS documentation and the SOP for the operation shall indicate the level of protection required. Forms of eye protection that may be required include the following:

(a) Safety glasses.

- Persons whose vision requires the use of corrective lenses, and who are required to wear eye protection, shall wear prescription safety glasses which meet the requirements of ANSI Z87.1 (current version). Ordinary prescription glasses do not provide adequate protection from injury to the eyes. Contact lenses are prohibited in areas where chemicals or volatile liquids are being used. Persons who must wear contact lenses for therapeutic reasons should inform the Line Manager so that satisfactory safety precautions can be devised.
- Side shields that attach to regular safety glasses offer some protection from objects that approach from the side but do not provide adequate protection from splashes. Other eye protection should be worn when a significant splash hazard exists.

(b) Goggles and face shields.

- Goggles and face shields are intended to be worn over safety glasses. They are intended for wear when there is danger of splashing chemicals or flying particles. Impact-protection goggles have screened areas on the sides to provide ventilation and reduce fogging of the lenses, but do not offer full protection against chemical splashes. Face shields that have splash-proof sides should be used when protection from harmful chemical splash is needed.

(c) Specialized eye protection.

- There are specific goggles and masks for protection against laser hazards and ultraviolet or other intense light sources, as well as glass-blowing goggles and welding masks and goggles. The SARS process should determine whether the task being performed requires specialized eye protection.

(3) Procedure for obtaining eye and face protective equipment.

(a) Non-prescription eye and face protection.

- Goggles for grinding and welding, laboratory goggles that fit over eyeglasses, face shields, and non-prescription safety glasses are available from the SSC ES&H staff.

- Requests for specialized goggles such as those used for laser work should be made to the SSC ES&H staff on an as-needed basis.

- (b) Prescription safety glasses. Prescription safety glasses are provided to NETL employees whose routine job tasks require the use of safety glasses. (See Attachment D1 for guidelines.)

c. Foot Protection

- (1) Minimum requirements for foot protection.
  - (a) Protective footwear purchased after July 5, 1994, shall meet the requirements and specifications in ANSI Z41.1 (current version).
  - (b) Safety or substantial shoes should be worn by all employees. Safety shoes shall be used when there is a routine exposure to foot injury hazards such as, but not limited to, physical hazards, chemical hazards, or environmental hazards. Steel-toed shoes are required when lifting greater than 20 lbs. or when working around forklifts and other heavy equipment.
- (2) Selection of protective footwear.
  - (a) The specification of the type of footwear required for a specific area is the responsibility of the Line Manager. Any required, specialized footwear should be specified in the SOP, SARS documentation, and/or OSHA PPE assessments.
  - (b) Other tasks may require specialized footwear, such as insulating soles. Leather footwear is satisfactory protection against small amounts of liquid nitrogen, but special thermal insulation may be required where there is a danger of more substantial exposure.
- (3) Procedure for obtaining protective footwear.
  - (a) Safety shoes and boots are provided to NETL employees through an outside vendor. They are available at no charge to the employee. (See Attachment D2 for guidelines.)
  - (b) Rubber and plastic shoe covers must be purchased separately.
- (4) Footwear maintenance.
  - (a) Protective footwear should be checked before use and cleaned regularly. If splits, cracks, or holes are apparent in the soles, heels, or uppers, the footwear should be repaired or replaced. Safety footwear which has been



subjected to a heavy blow should be replaced even if there are no evident signs of damage.

- (b) Footwear which has been seriously contaminated with hazardous chemicals may need to be discarded. NETL or SSC ES&HD will determine if footwear is to be discarded due to contamination upon request from wearer.

- (5) Alterations. Any alteration which reduces the protection provided by the footwear is forbidden. Footwear shall always be worn fully laced, buckled, or otherwise fastened.

d. Hand Protection

- (1) Minimum requirements for hand protection.

- (a) Protective gloves shall be worn when there is a routine exposure to hand injury hazards such as, but not limited to, mechanical hazards, chemical hazards, thermal hazards, or electrical hazards.
- (b) Gloves shall provide protection against a known hazard while permitting sufficient dexterity to accomplish the task. Gloves shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary.
- (c) Since no glove provides protection against all potential hazards, it is important to:
  - Select the most appropriate glove for a particular application.
  - Determine how long it can be worn.
  - Determine whether it can be reused.
- (d) Rubber insulating gloves are available for electrical work and shall conform to ANSI 56.6 (current version).

- (2) Selection of hand protection.

- (a) Gloves should be selected on the basis of the material being handled, the particular hazard involved, and their suitability for the operation being conducted.



- (b) The hazards that employees may encounter while conducting work determines the type of protective gloves that are appropriate. Types of protective gloves include:
- Abrasion-resistant gloves for sharp or rough objects.
  - Cold-resistant gloves for working with cryogenics.
  - Chemical-resistant gloves for working with chemicals.
  - Flame-/heat-resistant gloves for working with hot materials.
  - Electrical gloves for working with electrical hazards.
  - Rubber or other suitable gloves for handling contaminants.
- (c) Sources of information on glove material include the MSDS, tables published in chemical safety books and catalogs, and on the Internet.
- (d) It should be realized that chemicals can permeate a material without there being any visible sign of problems. Thus, a quick test of a glove material by subjecting it to a drop of the chemical to see if the glove dissolves can give a false sense of security.
- (e) The DOE or SSC ES&H staff shall be contacted for assistance in addressing difficult/questionable PPE requirements.
- (f) In routine laboratory use, where the purpose of the glove is to provide protection from the occasional accidental splash or spill, dexterity is as important as impermeability.
- (g) The SOPs for routine operations should state the appropriate glove and whether it should be discarded upon exposure.
- (h) Gloves shall not be worn when there is a possibility that the gloves will become entangled in a machine or tool, creating an additional hazard.
- (3) Glove maintenance.
- (a) Before each use, all gloves should be inspected for discoloration, punctures, and tears. Periodically, an inflation test, in which the glove is first inflated with air and then immersed in water and examined for the presence of air bubbles, should be conducted. Before removal, reusable gloves should be washed appropriately. Glove materials are eventually permeated by chemicals. Gloves should be replaced periodically, depending on frequency of use and permeability to the substance(s) handled. Gloves overly

contaminated (if impermeable to water) should be rinsed and then carefully removed.

- (b) Gloves that are found to be damaged, stiff, or dirty shall be removed from service.
  - (c) Gloves with holes shall not be used and shall be disposed of in the proper manner. Contaminated gloves shall also be disposed of as hazardous waste material.
  - (d) Any alterations of gloves which would reduce the protection afforded by the garment is forbidden.
- (4) Obtaining gloves.
- (a) Many gloves including leather, welders, zetex, vinyl, and neoprene are available from ES&H staff or their designee. However, some of the chemically resistant gloves such as those made of nitrite, PVC, and butyl rubbers are not available and may be purchased upon request. The DOE or SSC ES&H staff may be consulted for assistance in selecting and purchasing gloves.

e. Head Protection

- (1) Minimum requirements for head protection.
  - (a) Hard hats for the protection of heads from impact and penetration from falling and flying objects and from limited electric shock and burn shall meet the requirements and specifications established in ANSI Z89.1, Industrial Head Protection, and by OSHA in 29 CFR 1910.135.
  - (b) When there is a potential for impact injury to the head, hard hats shall be worn.
- (2) Selection of head gear.
  - (a) Personnel with long hair shall wear close-fitting, stiff brim caps, or hair nets while working around moving machine parts.
  - (b) Welding helmets shall be used during all arc welding or arc cutting operations.
  - (c) Hard hats designed to reduce electrical shock hazard shall be worn when exposed electrical conductors could contact the head.

- (3) Procedure for obtaining hard hats.
  - (a) General purpose hard hats are available from the storeroom. In those cases where more specialized hard hats are required, the Line Manager, in consultation with the ES&HD staff, shall decide which hard hat is to be used.
  - (b) Caps and hair nets are not available through the storeroom and must be supplied from operating funds. Caps and nets owned by the employee may be used with the consent of the Line Manager.
- (4) Hard hat maintenance.
  - (a) Head protection should be regularly inspected for signs of deterioration, damage, or wear. All components, including the shell, suspension, headband, sweatband, and any accessories, shall be visually inspected daily by the wearer for signs of discoloration, dents, cracks, penetration, shredding of fibers, or any other damage due to impact, rough treatment, or wear that might reduce the degree of safety originally provided.
  - (b) All protective headgear should be cleaned according to manufacturer's instructions.
  - (c) Hard hats made of polyethylene, polypropylene, or ABS have a tendency to lose their mechanical strength under the action of weather (heat, cold, and particularly strong sunlight). If such hard hats are used in the open air, they should be systematically replaced after a maximum of 3 years' use.
  - (d) Any hard hat that has been subjected to a heavy blow, even if there are no evident signs of damage, should be discarded.
- (5) Alterations. Any alteration to a hard hat, which reduces the intended protection, is forbidden.

## 10. ATTACHMENTS.

- a. Attachment D1 -- NETL's Prescription Safety Glasses Program Guidelines.
- b. Attachment D2 -- NETL's Safety Shoes Program Guidelines.

## ATTACHMENT D1

## NETL'S PRESCRIPTION SAFETY GLASSES PROGRAM GUIDELINES

1. PURPOSE. The purpose of the prescription safety glasses program at the NETL site is to provide employees who work in areas requiring the use of safety glasses with personal eye protection.
2. ELIGIBILITY AND PROCESS.

NETL employees are eligible to obtain prescription safety glasses if their recurring job tasks (e.g., at least biweekly exposure to eye hazards) place them at risk for eye injuries. Those employees making infrequent visits to project sites (e.g., less than one or two visits per month) can obtain overglasses to wear over their own prescription glasses.

The PPE requirement for safety glasses shall be documented through the SARS process, job task analyses, OSHA PPE assessment, or through line management review and approval (reference NETL F 440.1-12/6, Prescription Safety Glasses/Safety Shoes Request). Verification documentation of PPE need shall be required prior to PPE purchase by the ES&H approvers.

NETL employees must present the designated ES&H approvers (MGN: Heidi Dahmer, x4773; PGH: Bob Navadauskas, x6047) with an updated (less than 1 year old) ocular prescription to obtain purchase approval. An authorization letter will be prepared for NETL employees to present to the vendor prior to services being rendered. The services will be charged to an ES&H account.

Once approval for purchase is received, the employee must present the written prescription issued by a qualified eye specialist and the authorization letter to the vendor at the time of the request.

No more than one pair of prescription safety glasses will be issued to the same NETL employee within a 2-year period. Exceptions are (1) a change in prescription made by a qualified eye specialist and (2) damaged safety glasses (all frames have a 1-year warranty).

It is the employee's responsibility to have his/her prescription renewed at the appropriate time by a qualified eye specialist.

3. SPECIFICATIONS AND REQUIREMENTS.

All eye wear must be fabricated in compliance with ANSI Standard Z87.1-1989.

All glasses shall be issued with removable side shields required by OSHA regulations.

Employees are expected to wear the side shields whenever he/she is performing work which involves the potential for flying objects.

Glasses with bifocal, trifocal, double segment, and progressive lenses will be available.

Authorized options for lenses include roll, polish, scratchguard, and UV400.

Unless otherwise authorized by the DOE ES&H approvers, plastic lenses will be issued.

Unless otherwise authorized by the DOE ES&H approvers, lens tinting will **not** be permitted. If tinting is authorized, 10 percent is the maximum allowable tint.

Photochromic lenses are not authorized.

Prescription safety glasses must not exceed \$200 per pair, except for special circumstances that will require concurrence by the DOE ES&H approvers.

MSA spectacle kits will be available from the DOE ES&H approvers for HAZMAT members.

#### 4. VENDORS.

The vendor for the Morgantown facility is David O'Connor with Eagle Eyewear. (Note: The vendor will visit the site on an as-needed basis to fulfill requests.)

The vendors for the Pittsburgh facility are Bittel Certified Opticians located at 253 Curry Hollow Road, Pleasant Hills, PA, Phone: 655-9500; Jones Optical located at 455 E. Bruceton Road, Pleasant Hills, PA, Phone: 653-2000; and Optical Images located at 4973 Library Road, Bethel Park, PA, Phone: 831-7757.

The vendor shall provide a sample selection of available plastic and wire rim contemporary and standard style frames.

The vendor shall provide measuring, fitting, and minor repair in accordance with ANSI Standard Z87.1-1989.

## ATTACHMENT D2

## NETL'S SAFETY SHOES PROGRAM GUIDELINES

1. PURPOSE.

The purpose of the safety shoes program at NETL is to provide NETL DOE and contractor employees who are routinely exposed to foot injury hazards (e.g., at least biweekly exposure to foot hazards) with proper personal protective equipment.

2. ELIGIBILITY AND PROCESS.

A NETL employee is eligible to obtain safety shoes if his/her job tasks present routine exposure (e.g., at least biweekly exposure) to foot injury hazards. Those employees making infrequent visits to project sites (e.g., less than one or two exposures per month) may be able to wear substantial shoes (instead of safety shoes) if the risk of a foot injury hazard is low (e.g., employee is distanced from operations). Substantial shoes (e.g., leather oxfords) are defined as any footwear providing more protection to the feet than canvas-topped shoes, open-toed shoes, or sandals. However, there are occasions when substantial shoes are not adequate (e.g., observing hoisting/rigging operations) in which case, the employee needs to either stay at a safe distance from the activity or wear safety shoes.

The PPE requirement for safety shoes shall be documented through the SARS process, job task analyses, OSHA PPE assessment, or through line management review and approval (reference NETL F 440.1-12/6, Prescription Safety Glasses/Safety Shoes Request). Verification documentation of PPE need shall be required prior to PPE purchase by the ES&H approvers.

All safety shoe requests must be authorized by the DOE ES&H approvers (MGN: Heidi Dahmer, x4773; PGH: Bob Navadauskas, x6047).

Employees will be able to view catalogs in the DOE ES&H approvers' offices for choosing the preferred shoe style. The DOE ES&H approvers make the final decision on accepted styles. Special requests will be considered on an individual basis.

The DOE ES&H approvers will procure safety shoes using the Government credit card. The services will be charged to an ES&H account.

In MGN, safety shoe orders will be delivered to the DOE ES&H approver. Employees will be notified when their shoes are received. Allow 1-2 weeks for delivery on most orders. In PGH, safety shoe orders are sent directly from the vendor to the employee.

One pair of safety shoes will be issued to the NETL DOE or contractor employee. An exception is if seasonal requirements (e.g., significant outdoor exposure in both summer and winter) necessitate varying shoe requirements. Worn or damaged shoes shall be replaced when needed; however, at the ES&H approvers' discretion, employees may be required to turn in old shoes

prior to receiving new shoes. Shoes will also be replaced if a foot injury necessitates a different style of shoe.

It is the employee's responsibility to request his/her safety shoes at the appropriate time.

3. SPECIFICATIONS AND REQUIREMENTS.

All safety shoes must be fabricated in compliance with ANSI Standard Z41-1991.

Employees are expected to wear safety shoes whenever the work being performed causes the potential for exposure to foot injury hazards.

4. VENDORS.

The MGN vendor is the Army Store located at 137 Pleasant Street, Morgantown, WV, Phone: (304) 296-4316. The PGH vendor is Iron Age Safety Shoes located at Robinson Plaza Three, Suite 400, Pittsburgh, PA, Phone: (800) 223-8912, Fax: (412) 787-8123.

In MGN, the vendor's place of business will be open to NETL employees to try on selected styles of shoes (depending on availability) before placing an order.

The vendor will need verbal or written authorization from the DOE ES&H approver before supplying services to individual NETL DOE and contractor personnel.



## ATTACHMENT E

## NETL EMERGENCY EYEWASHES/EMERGENCY SHOWERS

1. PURPOSE. To define the requirements for utilizing, inspecting, and maintaining emergency eyewashes and emergency showers for protection of employees and visitors at NETL from exposure to potentially hazardous chemicals.
2. CANCELLATION. This Attachment replaces all documents pertaining to NETL Emergency Eyewashes/Emergency Showers created prior to the NETL formation.
3. REFERENCES.
  - a. Statutory ES&H Standards:
    - (1) 29 CFR 1910.133, Eye and Face Protection.
    - (2) 29 CFR 1910.151, Medical Services and First Aid.
    - (3) 29 CFR 1910.1020, Access to Employee Exposure and Medical Records.
    - (4) 29 CFR 1910.1450, Occupational Exposures to Hazardous Chemicals in Laboratories.
  - b. Reference ES&H Standards:
    - (1) ANSI Standard Z87.1-1989 (or latest revision), Occupational and Educational Eye and Face Protection.
    - (2) ANSI Standard Z358.1-1998 (or latest revision), Emergency Eyewash and Shower Equipment.
    - (3) American Conference of Governmental Industrial Hygienist (ACGIH), Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, current edition.
4. DEFINITIONS.
  - a. ANSI -- American National Standards Institute.
  - b. CHO -- Chemical Hygiene Officer. The designated NETL employee responsible for the oversight of the NETL Chemical Hygiene Plan.
  - c. CWC -- Central Work Control.



- d. ES&HD -- Environmental, Safety, and Health Division.
- e. FC -- Facility Custodian.
- f. OSHA -- Occupational Safety and Health Administration.
- g. Permanent Eyewash Station -- Eyewash station which is plumbed directly into a constant supply of water.
- h. Personal Eyewash Equipment -- A supplementary eyewash that may not meet ANSI Z358.1 eyewash station flow requirements.
- i. Portable Eyewash Station -- Eyewash station in which the water supply is self-contained and flow meets ANSI Z358.1 standards.
- j. Potable Water -- Water suitable for drinking.
- k. RP -- Responsible Person. For the purposes of this Attachment, the person assigned to a project/laboratory who has the responsibility for generating project or laboratory test plans and operating procedures that include PPE requirements for that project/laboratory.
- l. SOD -- Site Operations Division.
- m. SSC -- Site Support Contractor.

## 5. QUALITY CONTROL.

- a. NETL's ES&H Program Manager, as assigned by the ES&HD Director, shall provide oversight and guidance to ensure that implementation of NETL's Emergency Eyewash and Shower Program is in compliance with applicable OSHA, DOE, and NETL regulations and/or requirements.
- b. Maintenance and operation of emergency eyewash and showers shall be reviewed during periodic ES&H assessments.

## 6. RESPONSIBILITIES.

- a. The ES&H Program Manager shall assess if NETL is in compliance with the requirements of this Attachment.
- b. SSC ES&H Staff or designee shall:
  - (1) Provide for eyewash and emergency shower inspections to ensure that proper flow is maintained and that all units are operational and accessible.

- (2) Generate an eyewash and emergency shower inspection log.
- (3) Provide eyewash and emergency shower training for NETL employees who have the potential for using eyewashes and/or emergency showers.
- c. SOD shall ensure that emergency eyewash and shower work order requests (e.g., for repair) are processed and completed in a timely manner.

7. TRAINING REQUIREMENTS.

- a. All emergency eyewash and shower inspectors shall be trained in eyewash station and shower maintenance and inspection.
- b. NETL personnel who may have the potential for using eyewashes and emergency showers shall have training.

8. DOCUMENT CONTROL.

- a. An Eyewash and Emergency Shower Inspection Log shall be kept by the SSC ES&H staff to record the following information:
  - (1) The location, and type (if applicable), of all eyewashes and showers. This list shall be kept current.
  - (2) The dates of inspection, test, or maintenance.
  - (3) Any problems noted on any inspection performed in accordance with this Attachment.
  - (4) Inspector's initials.
  - (5) Date problem resolved (applies to showers only).
- b. SSC ES&HD shall submit an annual report to ES&HD including items identified in the Eyewash and Emergency Shower Inspection Log that have not been resolved, and any other information deemed pertinent by the SSC ES&H.
- c. The assigned ES&H Program Manager shall review this Attachment at least annually and update as necessary to accommodate changing conditions at NETL and to ensure compliance with applicable regulatory requirements.

- d. The most recent and official controlled hard copy version of this Attachment shall reside with NETL's Directives Coordinator. An electronic version of this controlled Attachment shall be placed on the NETL Intranet for employee use. Printed hard copies of this Attachment (e.g., those printed from the Intranet) shall be considered non-controlled documents.

9. PROCEDURE.

- a. Permanent Eyewash Stations -- The SSC ES&H staff or designee shall perform the following once per week according to a statistical sampling plan:
- (1) Inspect immediate area for tripping and electrical hazards, obstructions, and the presence of a highly visible sign which identifies the location of the eyewash.
  - (2) Inspect eyewash bowl for any obstruction which might cause a malfunction of the eyewash.
  - (3) Flush fountains for at least 3 minutes and check for an adequate flow of water as follows:
    - (a) Ensure dust covers do not require a separate motion to remove.
    - (b) Using an ANSI-approved water level gauge for eyewash stations, ensure that at least 0.4 gallons per minute flows out of the eyewash.
    - (c) If the eyewash has an outer facewash ring, it should provide an even spray of water throughout its circumference. If these facewash rings are clogged, they should be brushed with a wire brush to remove the buildup.
    - (d) If the flow must be adjusted, refer to the appropriate service manual for instructions.
    - (e) While flushing the system, ensure the used water collection device (i.e., a drain or a reservoir) is in proper working condition.
      - There should be no accumulation of water on the floor if these systems are functioning properly.
      - If equipped with a reservoir, it should be able to hold at least the amount of water delivered in 15 minutes of operation. (Therefore, buckets used for this purpose cannot have a capacity of less than 6 gallons!)
  - (4) After flushing, inspect the bowl for cleanliness and cleanup all spilled water.

- (5) Record the inspection date and inspector's initials on the Eyewash Inspection Tag.
- b. Portable Eyewash Stations -- The SSC ES&H staff or designee shall perform the following:
- (1) Inspect eyewash stations once per month or as frequently as specified by the bacteria inhibitor manufacturer.
    - (a) Ensure the bath is full by lifting the lid on the top of the bath and visually checking the water level. If there is any evidence of slime or mold growth on the interior surface of the reservoir, it should be cleansed with a wet clean cloth or a hose using a gentle stream of water.
    - (b) Inspect immediate area for tripping or electrical hazards, obstructions, and the presence of a highly visible sign which identifies the location of the eyewash.
    - (c) Record the inspection date and inspector's initials on the Eyewash Inspection Tag. Record the inspection date in the Emergency Eyewash Inspection Record Book.
  - (2) Once per quarter, clean eyewash station.
    - (a) Pull the activation strap and observe the flow to assure that water flows freely from all outlets.
    - (b) Completely empty the reservoir and thoroughly rinse with potable water. Clean all exterior surfaces of the unit.
    - (c) Observe to assure that the used water reservoir has no leaks and is capable of holding at least the amount of water delivered in 15 minutes of operation.
    - (d) Refill the reservoir with potable water and add a commercial potable eyewash bacteria inhibitor following manufacturer's instructions.
    - (e) Ensure a good seal with the activation strap. Refill and place the unit back in service.
    - (f) Record the date of cleansing and the cleanser's initials on the Eyewash Inspection Tag.
  - (3) Once per quarter, check eyewash station flow.
    - (a) Start eyewash flow. Ensure the dust covers do not require a separate motion to remove.

- (b) Time how long it takes to fill a 1-gallon container. The time must be 2.5 minutes or less.
- (c) After 12.5 minutes of flow, again time how long it takes to fill a 1-gallon container. The time must be 2.5 minutes or less.
- (d) If the flow is too slow, at either the beginning or the end of the flow time, tag the eyewash “Out of Service” and replace with a spare eyewash. Inspect and test the spare eyewash as required in this Attachment. Submit a Work Order Request to repair the “Out of Service” eyewash.

c. Personal Eyewash Equipment

- (1) Personal eyewash equipment shall not replace a permanent or portable eyewash station. They shall be tagged “Personal Eyewash.”
- (2) Personal eyewash equipment shall be inspected and cleansed the same as the portable eyewash stations.

d. Emergency Showers

- (1) The SSC ES&H staff or designee shall perform the following once per quarter:
  - (a) Inspect immediate area for tripping or electrical hazards, and ensure that the shower is not obstructed. If it appears that discharging the shower may present an electrical hazard, notify the FC.
  - (b) Ensure the location of the shower is identified with a highly visible sign.
  - (c) Activate the showers to flush.
- (2) The SSC ES&H staff shall test the shower once per quarter to ensure proper operation.
  - (a) Obtain the flow-rate testing barrel, barrel dolly, sump pump, emergency shower tester, and a stopwatch.
  - (b) Place the emergency shower tester around the showerhead and ensure that it is securely fastened.
  - (c) Place the flow-rate testing barrel, which should be setting on the barrel dolly, under the emergency shower tester to catch the water.

- (d) Measure the water volume accumulated as a function of time (over 20 seconds of operation is ideal), and verify that the flow is greater than the 30 gallons/minute required by ANSI Z358.1-1990.
  - (e) Turn off the shower. If the shower continues to drip, flush again to remove any particles, which may prevent proper seating of the valve. If the unit continues to leak, place a bucket under the leak, post appropriate caution notices, and place an emergency repair call to CWC.
- (3) Record the date of inspection and the initials of the inspector on the Inspection Tag attached to the shower.
- e. If a shower or eyewash shows signs of deterioration the SSC ES&H staff shall:
  - (1) Sign the inspection/test date on the tag.
  - (2) Submit a Work Order Request to correct the problem.
  - (3) Inform the FC.
- f. If a shower or eyewash malfunctions during a test, or otherwise is expected to do an inadequate job in the event of an emergency, the SSC ES&H staff shall:
  - (1) Sign the inspection/test date on the tag.
  - (2) Tag the eyewash or shower with a tag stating "Do Not Use" or "Out of Service."
  - (3) Place an emergency repair call to CWC.
  - (4) Inform the FC.
- g. All new eyewashes and emergency showers must be constructed to deliver a supply of tepid water to the user and be located less than 10 seconds from hazards in accordance with ANSI Z358.1-1998.